



The Effects of Certain Proprietary Mouth Washes Upon the Teeth.

By H. PRINZ, B.Sc., D.D.S., St. Louis, Mo.

At present the quality of a mouth wash seems to be judged by its antiseptic power only. From a recent paper published by Dr. Peck,* of Chicago, Ill., we learn that out of eleven proprietary preparations only four restrained the growth of the micro-organisms, if used in definite proportions, and of these four liquids, three owe their effective antibacterial power, more or less, to the quantity of formaldehyde present. The other one—sanitol—is so much unlike the other preparations that it cannot be well classified with the rest.

Almost all of these modern dental antiseptics contain boric acid in combination with benzoic acid, thymol, menthol and the addition of essential oils, such as eucalyptus, cassia, gaultheria, peppermint, etc. This, with some variations, holds good, according to label to Listerine, Pasteurine, borolyptol, bensolyptus, glycothymoline, euthymol, etc. Sozodont consists mainly of a solution of castile soap and essential oils in diluted alcohol, while sanitol represents the salol-saccharin-alcohol class. To combine the above named drugs in an elegant and palatable pharmaceutical, as well as therapeutical preparation, they must be compounded in definite proportions, which, of course, will determine their germicidal strength.

If we take two typical representatives of this kind, viz., Listerine and Pasteurine, we find, according to the affixed label, that Listerine is the essential constituent of thyme, eucalyptus, baptisia (wild indigo), gaultheria and mentha arvensis (Japanese peppermint), in combination. Each fluid drachm also contains two grains of refined and purified benzo-boracic acid," (?) and "Pasteurine contains the active antiseptic principles of cassia zelanicum, eucalyptus, gaultheria, menthol combined with boro-glyceride and 0.3 per cent of formaldehyde."

**The Dental Digest*, 1899, page 230.

By actual experimental tests, it is shown that a 10 per cent solution of Listerine will check the growth of anthrax-bacilli, while Pasteurine will do the same work in a 1 per cent solution. (Crandall.) By comparing the formulae of, and the results obtained with, the two antiseptics, we may conclude that their value is largely due to the presence or absence of formaldehyde. The latter is almost as powerful as bichloride of mercury, although comparatively harmless, if properly blended and diluted.

From the study of the flora of the human mouth, we know that the dense adhesion of the gelatinous mass of fungi is never removed by simple rinsing of the oral cavity, no matter what mouth wash is employed. Mechanical cleansing, by means of the brush in connection with some dentifrice, is necessary, and even this would not create an absolutely sterile condition for any length of time, as the sterility practically ceases with the removal of the active agent.

Some genial dentist theorized upon the happy thought to compound a dentifrice which contained the potent antiseptic in an alcoholic solution, which would, when used in the proper aqueous dilution, form an emulsion which in turn would deposit the precipitated antiseptic between the interproximal spaces of the teeth, and thus inhibit the growth of bacteria.

Of the modern synthetical chemicals, salol and saccharin are the ones which are mostly used for the purpose. Saccharin is a coal-tar product, derived from toluol or thio-salicylic acid. Slightly soluble in water (1 : 250), but very soluble in alcohol, ether, etc. It is remarkably sweet, and has a strongly anti-bacterial power. Salol, or phenyl-salicylate, is another coal-tar product, formed by the action of salicylic acid upon phenol by means of phosphorous chloride. It is insoluble in water, but very much so in ether or alcohol. In alkaline solutions it will split up into its compounds, viz., salicylic and carbolic acids. For some time salicylic acid has been much lauded as an ideal dental antiseptic, but soon its deleterious influence upon the enamel of the teeth became so marked that its use in this connection is practically discarded at present. Salol took its place, but it is found to be just as detrimental to the dental organs as its component, salicylic acid.

Nevertheless, some enterprising patent medicine firms have flooded both continents with such a preparation. In Europe a salol-alcohol is known as "odol," while the American maker has changed its name to "sanitol." "Odol," according to *Pharmaceutical Post*, 1894, is a solution of 3.5 parts of salol in 90 parts of alcohol with the addition of 0.2 parts of saccharin, and some essential oils, mostly peppermint. The salol reaction in odol as well as sanitol, is easily proven by adding a few drops of chloride of iron solution (1 : 20) to the liquids; a violet tint is instantly produced.

To determine the influence of sanitol upon the teeth, I conducted a series of experiments. The effect was so surprising that I concluded to try some of the other best known dental preparations on the market in the same direction. The tabulated results are appended herewith.

Experiments.

The teeth which I used for the purpose were thoroughly cleansed, boiled in water and alcohol, dried, and the apical foramina, and the carious defects sealed with paraffin. Each tooth was then exactly weighed up to one-tenth of a grain, immersed in the liquid, accordingly pure or diluted, and kept there for a certain length of time. The teeth were then removed, carefully washed in water and alcohol, dried and again weighed. The difference is expressed in per cent.

FIRST SERIES.

Teeth immersed in the *undiluted liquids* and kept there undisturbed for *ten days*.

Name.	Reaction.	Weight.		Loss in Per Cent.	Remarks.
		Before.	After.		
Euthymol.....	acid.	Grains. 28.7	Grains. 28.4	1.05	stained deeply bluish-red, stained slightly pink.
Listerine	acid.	37.3	37.1	0.54	
Bensolyptus	weak alkaline.	39.3	38.7	1.53	
Glycothymoline.	strongly alkaline.	26.8	27.0	0.75 (gain in weight)	
Sozodont	weak alkaline.	32.8	32.4	1.22	peculiar appearance, bleached.
Borolyptol.....	acid.	13.7	13.6	0.73	
Pasteurine	acid.	32.2	32.1	0.31	
Sanitol	neutral.	21.6	20.2	6.48	

SECOND SERIES.

Teeth immersed in the *undiluted liquids* and kept there undisturbed for *twenty days*.

Name.	Weight.		Loss in Per Cent.	Remarks.
	Before.	After.		
Euthymol	Grains. 28.2	Grains. 28.0	0.71	stained deeply bluish-red, stained deeply pink.
Listerine	28.1	27.8	1.07	
Bensolyptus	32.1	31.8	0.93	
Glycothymoline	20.7	19.9	3.87	
Sozodont	33.2	35.0	0.60	looks like bleached.
Borolyptol	34.9	34.7	0.57	
Pasteurine	33.0	32.9	0.30	
Sanitol	25.8	21.7	15.89	

THIRD SERIES.

Teeth immersed in the *diluted liquids* (1 : 20) except *sanitol*, which was 1 : 50, and kept there undisturbed for *twenty days*.

Name.	Weight.		Loss in Per Cent.	Remarks.
	Before.	After.		
	Grains.	Grains.		
Euthymol	43.9	43.6	0.68	
Listerine	29.7	29.5	0.67	
Bensolyptus.....	22.0	21.8	0.91	
Glycothymoline....	27.9	28.1	0.72 (gain in weight)	stained slightly bluish-red.
Sozodont	22.8	22.3	2.19	stained, slightly pink.
Borolyptol	20.0	19.8	1.00	
Pasteurine.....	26.2	26.1	0.38	
Sanitol.....	25.5	24.0	5.88	

AVERAGE LOSS IN PER CENT.

Euthymol	0.81	Glycothymoline.....	3.87
Listerine	0.76	(Loss in only one specimen, while two	
Bensolyptus	1.12	others had an average gain of 0.74 per	
Sozodont.....	1.34	cent. This gain seems to be due to a	
Borolyptol.....	0.77	deposit of coloring matter in the tubuli	
Pasteurine	0.33	of the dentin).	
Sanitol.....	9.41		

For diluting the liquids we used distilled water. According to repeated trials, the proportions of 1 : 20 seemed to be best tolerated by the oral cavity, and probably correspond in the main with those used by the public in general. Sanitol had to be diluted to at least 1 : 50 parts of water, and still the taste of the oil of peppermint and the salol-saccharin became so irritating to the mucous lining of the mouth and lips that after some days it had to be discarded. A case illustrating this fact is reported by Dr. Neiser (vide, *Ohio Dental Journal*, 1898, page 515). A little boy about six years of age had a squamous eczema about the mouth for some months. The upper and lower lips and the chin were swollen, causing a very painful itching sensation. All the employed remedies failed, until the boy was advised to omit his daily mouth-wash, "odol." Recovery set in immediately, showing that "odol" was the cause without doubt. The antiseptic value of such a weak solution is, of course, practically nil. Sozodont, it seems to us, contains too much soap for ordinary purposes, and has no disinfectant value, while Listerine, euthymol, bensolyptus and glycothymoline in proper dilutions are too weak if compared with the last two of our list, viz., borolyptol and Pasteurine, the latter being, according to our tables, the least injurious to the teeth.

We must bear in mind, however, that the experiments were conducted in the laboratory, and cannot be supplemented in the oral cavity.

Nevertheless, they teach us to be careful in the selection and recommendation of certain mouth specialties, which may not alone be valueless, but may have a direct detrimental influence upon the dental organs.*

Nirvanin in Dental Surgery.

By WILLIAM S. GEE, D.D.S., Providence, R. I.

Local anesthesia under cocaine has proven so successful since its properties were generally made use of about fifteen years ago, that it has been the most widely used drug for this purpose that we have ever known, and the results obtained with it have been so generally satisfactory that its use has become more prevalent with each succeeding year.

Unfortunately, its use was so frequently followed by alarming and even dangerous symptoms, that many dental practitioners became deeply prejudiced against it, and this to such an extent that I have heard a prominent professor earnestly warn a patient to avoid the dentist who used cocaine, as he would prove to be a dishonest man.

Eucaïne, a synthetical product, was offered to the profession as a safe and reliable substitute for cocaine, but for many reasons this failed to take the place occupied by the earlier preparation.

My own experience with cocaine has been particularly free from dangerous complications, yet I have had enough such to make me very cautious in using it, and to look forward to the time when some one would produce a non-toxic substitute that would really substitute. My experience with nirvanin, a soluble preparation of orthoform, leads me to believe that we have at least been furnished with what we have been seeking for. Nirvanin, while equally efficient, and in some respects superior to cocaine as a local anesthetic, has the crowning glory of being only one-tenth as toxic. This should be readily appreciated.

I first tried its anesthetic properties by making a sub-cutaneous injection in my arm of a five per cent solution which had been boiled. I was delighted with its action, for the anesthesia was very lasting, the nirvanin being so slowly absorbed that twenty-five minutes after the injection was made a surgeon's needle was passed completely through the infiltrated area without the slightest sensation of pain. I concluded from this trial that a four per cent solution would be sufficient, and have used this

*A second series of experiments in the same direction is carried on at present, using simply liquids, such as water, alcohol, dioxide of hydrogen, etc. So far the influence of these liquids seems to be very much on the same line as the proprietary compounds, viz.; a more or less perceptible loss of tooth-substance. The results of the experiments will be embodied in a second paper and published in this journal on some future time.—H. PRINZ.

strength continuously with eminent satisfaction. The mistake was first made of attempting to extract too soon after the injection, but I now wait from two to five minutes or more.

Nirvanin has little or no anesthetic effect when brought in contact with a mucous surface, as has cocaine. It must be used hypodermatically. Besides the local anemia, which would be produced by the sub-cutaneous injection of even pure water, there seems to be a direct paralysis of the sensory peripherals. In the dozen or more cases in which I have used nirvanin there have been no untoward symptoms, the pulse and respiration remaining unchanged. Nirvanin has the further advantage of being anti-bacterial, so that its solutions are permanent, and, moreover, it is less liable to produce sloughing of the gums.

Summed up in a few words, its advantages over the topical agents heretofore used are, its non-toxicity, the length of duration of its effect, the profound anesthesia produced, its anti-bacterial action, not to mention the freedom from the uncertainty that accompanies the employment of cocaine, although no conscientious practitioner will fail to carefully watch his patient, no matter what the agent employed may be.

With all these good qualities to recommend it, it seems to me it must soon be placed in the first rank of the local anesthetics for dental use.

Donations to the Army Medical Museum.

(Continued from page 571.)

Several months before the death of Dr. Bonwill, our editor, in conversation with him, urged that he deposit his collection of original models of all of his inventions in the Army Medical Museum.

He expressed a willingness to do so, but declared that he preferred to keep them during his lifetime, and he promised to bequeath them to the Museum by will. This promise was kept; the executrix has offered the models to the Museum, and they have been accepted. Therefore, in a short time, this valuable collection will be added to the dental treasures of that institution.

Dr. W. C. Miller, of Daisy, Ga., donates a
No. 127. bicuspid (Fig. 64) having an unusually large canal, the foramen being still widely open, although the specimen was taken from the mouth of an adult, age eighteen.

Dr. F. E. Buck, Jacksonville, Fla., donates a
No. 128. bicuspid from which the apex was apparently separated by exostosis. The tooth, when removed, dis-

closed this fact, and the Doctor drilled into the alveolus and fortunately succeeded in getting the apex, which fits into the end of the root as a stopper would into a bottle. (Fig. 65.)

No. 129. Dr. Arthur F. Hooper, of Auckland, New Zealand, donates an upper third molar having four roots extracted from his own mouth (Fig. 66).

No. 130. Also, a lower molar having three roots (Fig. 67).



Fig. 64.



Fig. 65.



Fig. 66.



Fig. 67.



Fig. 68.

No. 131. Also, an upper molar with fused roots (Fig. 68).

No. 132. Dr. William H. Mitchell, of Bayonne, N. J., donates a cast (Fig. 69), on which is a peculiarly formed central incisor, of which the following is the history:

"This peculiar central incisor, a cast of which is presented herewith, seems to be worthy of more than a passing observation. This cast was taken by the writer in chewing gum for want of a better material, in 1882. A piece of bent tin serving for an impression tray.

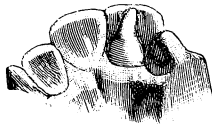


Fig. 69.

"As will be noticed in the cast from the cervical border on the palatal surface of the left superior central incisor a beautifully rounded and curved "horn-like" projection hangs down and curving toward the front, its point meeting the cutting edge of the tooth. The anomalous development of this tooth interested me, and observing the difficulty that she had to keep the space between the inner curve of the 'process' properly cleaned so as not to render the tooth itself particularly liable to caries. I suggested to her that I remove it for the good of the tooth. She demurred at the suggestion, and the subject was dropped for the time.

"Within a year after this I saw the tooth again, and as I had feared a cavity of considerable size had formed on the palatal surface of the tooth. This she would have liked to have filled but still objected to my removing the 'process' and the progress of the decay was allowed to go on.

"In the spring of 1890 she came to my office in a state of great distress, for half of the crown had broken off and the sharp point of the 'horn' hurt her lip.

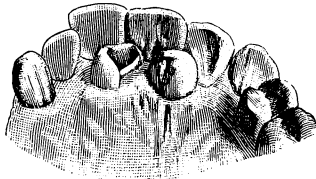


Fig. 70.

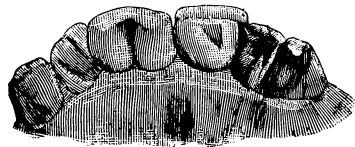


Fig. 71.

"Singularly enough, the 'horn' seemed immune to decay. I then suggested that the best thing that I could do for her was to cut off the entire tooth and place a Logan crown on the root; this she assented to, and I did the work.



Fig. 72.

Fig. 73.

Fig. 74.

"When I removed the 'horn' what I had surmised, that the pulp extended into it as into the crown itself, was proven. I was able to pass a Donaldson bristle to within one millimeter of its point. I would have liked to present this horn with the cast, but it was lost in the fire that destroyed my office in 1894.

"I have noticed, since this peculiar formation came to my notice, that a great many teeth possess it in a rudimentary form, for many teeth show a slight protuberance in the same location. I have also seen in a young boy a similar tooth that I will try to get a cast of later on, but in this case it was straight and not as long."

No. 133. Dr. J. E. Armstrong, of Woodruff, Ariz., donates a model of the mouth of a young woman of twenty showing supernumerary teeth (Fig. 70).

No. 134. Dr. W. O. Robinson, of Parker, South Dakota, donates a model showing a double central incisor (Fig. 71). This tooth had exposure of the pulp on both approximal surfaces, and pulps were removed from two roots.

No. 135, Dr. J. R. Megraw, of Fayette, Mo., donates three photographs of a negro, who is supposed to
No. 136, No. 137. have the largest mouth in the world (Figs. 72, 73 and 74).

In one of the illustrations he is shown with four full sized billiard balls in his mouth, and in another, he has in his mouth the end of a spoon-holder, which measures six and one-quarter inches in diameter.

It is claimed that he found no difficulty to place his fist in his mouth back against the soft palate, the circumference of his fist measuring ten and one-half inches.

His teeth appear more like horse teeth than those of a human being, and he could take an iron rod three-quarters of an inch in diameter, and, holding it between his teeth, bend it.





Concerning Articulators.

By A. DEWITT GRITMAN, D.D.S., Buffalo, N. Y.

The writer, during his connection with the Philadelphia Dental College, had occasion to familiarize himself with the Bonwill Articulator, and it was his privilege to hear it explained, and its merits set forth by Dr. Bonwill on several occasions. It is an admirable instrument, and is particularly noteworthy as being the first articulator which has copied Nature, and enabled the dentist to simulate the movements of the mandible, when articulating artificial dentures. But as the matter received further study it became evident that it was, notwithstanding its many meritorious features, still capable of improvement; its deficiencies being as follows:

In the construction of full upper and lower dentures, there was an insufficiency of room for the two models, if they were not very thin; and it was often difficult to mount them in the articulator and preserve the parallelism of its jaws.

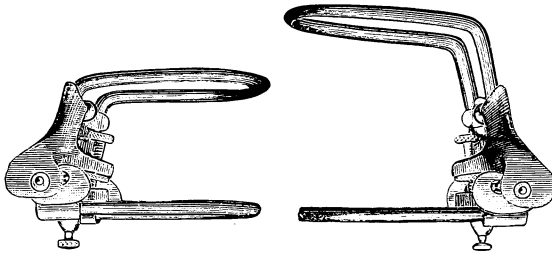
The device for simulating the back and forth movement of the condyle, consisting of horizontal bends in two parallel wires, gives the simultaneous movement of both sides for protrusion of the mandible very nicely, but is apt to cramp when the side to side movement is made. Then again, the movement is horizontal; while that of the condyle, as it slides forward upon the *eminencia articularis*, is inclined more or less downward.

The method of setting the models in the articulator, by measuring four inches from the articulator joints to the mesial line at the faces of the base plates, only locates the one point at best. The rear portion of the model may be swung from side to side, or raised or lowered, without disturbing the mesial line. The measurement is also only an average; which

may not be correct for any particular case. The accurate location of the model is, in fact, of the greatest importance; and most of the annoyances arising from faulty articulations have their origin in ignorance of this fact.

The first of these objections, that of insufficient room, at times, is easily met by lengthening the lower bow, or model support, and bending its ends upwards; the sockets for their reception being made perpendicular instead of horizontal. In this way, a sufficient proportion of downward extension may be had to meet all requirements.

To effect the desired improvements in the articulator joint, and enable it to execute all the necessary movements with accuracy and freedom of operation, a radical change was required. The lower section of the new articulator has, for the reception of the upper section, parallel, perpendicular faces, looking inwards; between which are received the upper section; which has its ends rounded to the proper curve to allow the necessary lateral swinging motion, and still fill the space it occupies. The joints are cylindrical pins, attached to and projecting inwardly from the faces



of the lower section, the upper section having inclined slots for their reception. By giving the slots the right proportion of inclination, the average downward movement of the condyle, as determined by the inspection of a large number of cases, is imitated. The joint gives all the required movements, and is easily operated. The correct location of the model in the articulator is a matter which has received little attention; and the necessity for exactly duplicating in the instrument the conditions present in the patient's mouth is not generally apprehended. With most of the articulators in use, the model is set at too great a distance from the joint; much greater than in nature; the effect being that if it be desired to "open" or "close" the bite, to set the teeth so they will be a little longer or shorter than was at first contemplated, the plates, notwithstanding they have perfect occlusion in the articulator, will fail to have it when placed in the mouth, and will require considerable grinding before they are in condition for use. It has, indeed, come to be fairly well understood that the articulator cannot be trusted in such a case; and if any change is made in

the bite, the patient must be called in, and the teeth rearranged in the mouth.

In constructing interdental splints, when the opposing teeth are to be held apart, the models are placed in the articulator with the teeth in contact, and the jaws of the articulator are then separated as much as may be required. But the splint, when made, does not always fit as it should.

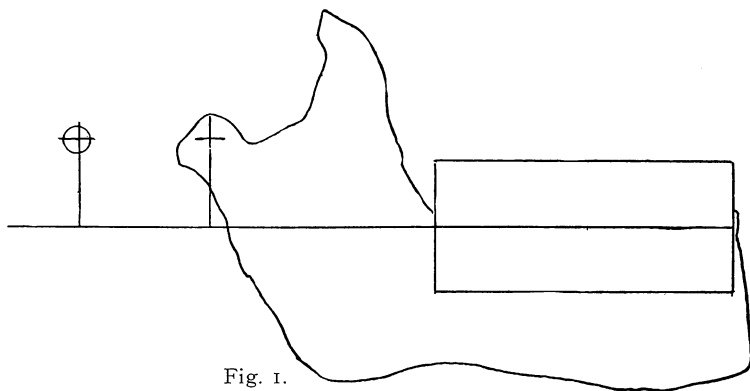


Fig. 1.

It will fit the teeth of either jaw, but when placed between them the bearing comes on the back molars, while the incisors are loose in the splint. The

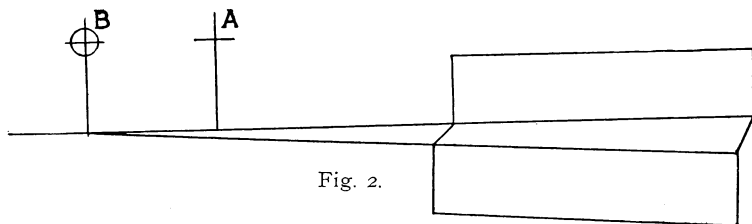
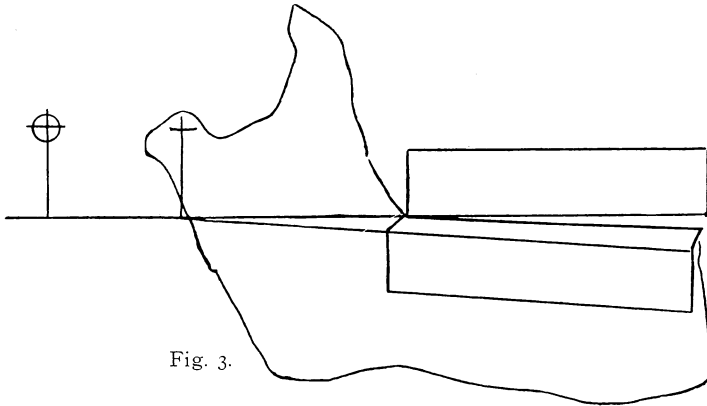


Fig. 2.

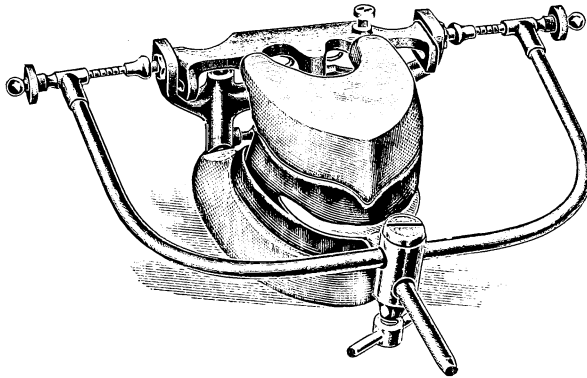
models were not correctly placed in the articulator. They did not stand in the same relation to the articulator joint that the natural teeth do to the condyles of the mandible. The center of motion being different in the articulator from its place in nature, the splint, which would fit the articulated teeth correctly, would not fit in the mouth. The accompanying diagrams may serve to elucidate this point.

In Fig. 1 we have two trial plates in the mouth and in apposition. In Fig. 2 they have been removed to an articulator, the joint of which is seven-eighths of an inch farther back than the condyle. The bite has been opened and an addition made to the lower plate; it is seen to meet the upper one correctly. In Fig. 3 the plates are again placed in the

mouth; but they now do not meet properly. All the bearing is at the rear, and the front of the plates are separated considerably. It is evident that if the teeth had been mounted upon the plates, they would either require grinding enough to ruin them, or the plates would have to be made



over. The matter can be stated as a proposition in geometry, as follows: Two coinciding lines or surfaces, if moved about different centers, will immediately cease to coincide. To obtain the positions of the working centers, the condyles, is, then, a matter of some importance; so much so,



that it will be preferable to ascertain their positions for each case, rather than to take an average in part, and guess at the rest.

An implement by means of which the relative positions of the alveolar ridge and the condyles may be ascertained in each case, as it comes to hand, has been devised by Prof. Snow, of the Dental Department, Uni-

versity of Buffalo, and is briefly described as follows: A forked stem is cemented to the trial plate, so that it will project from between the lips in the mesial line, when the plate is in the mouth. A bow of metal is secured to the stem by a universal joint, and reaches around the face; its ends having adjustable pointers which can be placed directly over the condyles on either side. When the proper adjustment has been made, the universal joint is tightened, and the trial plate with the fixture attached is removed from the mouth and transferred to the articulator. The points which were previously accurately set over the condyles, are now brought into line with the articulator centers.

The upper model is put in the trial plate and attached with plaster, as usual; the lower plate and its model are then cemented to the upper one and also attached, and they will then be correctly placed in every respect.



Not only will the correct distance from the front to the condyle be attained, but the position at the rear will also be correct; there can be no variation in any way; either upwards, downwards or sidewise. All the peculiarities of the individual case are copied, and the teeth may be set up with the assurance that the plates, when placed in the mouth, will have exactly the same occlusion as when in the articulator.

The use of this instrument has convinced the writer of the futility of reliance upon the judgment in placing the model. In more than one instance the model, when set, has *seemed* to be wrongly placed. But when the plates were finished and placed in the mouth, the accuracy of their occlusion was the best proof that the work in the articulator had been correctly done.

Zinc Dies.

By OLIVER PERRY WOLFE, D. M. D., Canton, Mass.

I have a few words to say upon that branch of our profession which relates to the making of zinc dies on which to strike up a gold plate.

It seems to me that the various works on prosthetic dentistry deal too lightly with this particular subject, and as we all realize that the ultimate success or failure of a case depends almost entirely on the model upon which it is made, I think that a description of the method by which I make my dies might be interesting.

While in college we were taught to run the model in plaster, building it up an inch or so, and sandpaper the sides until they were smooth. Then chalk was applied and an impression taken in sand. We were told that the sand should be just wet enough, not too moist, and not too dry. In fact it should have just the right "feel." Then we were told to pour it with zinc. If the model had undercuts which we could not overcome by drawing the model at an angle, we were to fill them in with chalk and cut them out in the zinc model while it was hot.

How many burned fingers, how many ruffled tempers and how many ill-fitting plates this has caused I could not attempt to state, but suffice to say that many dentists today are putting vulcanite or celluloid in mouths where gold could and should be used, and for what reason? They dread the undercuts.

Nearly a year ago a patient came to my office and requested me to make a gold plate. The mouth was in good condition and everything seemed favorable for a good fitting denture. The impression was duly taken and handed to my assistant with instruction to pour it and take an impression in sand. An hour later he came to me and said that he could not get a good impression owing to the exceedingly deep undercuts.

I took the model, and after several trials, the last time filling the undercuts with chalk, I succeeded in getting the model away without breaking the sand. But this was not satisfactory. All semblance to the original model was lost, and I knew that a great deal of cutting must be done on the zinc to bring it down to the proper shape. It then occurred to me to try an experiment, the details of which I am about to give.

**Novel
Method of Making
Zinc Die.**

I covered the model with a thin coating of vase-line and set it on the slab, just as we do when about to pack the sand around it. Then I mixed sand and plaster in the following proportions: Sand, three parts; plaster, one part; just thin enough to run easily,

and poured it over the model, tapping the slab to insure a perfect adaptation to all parts. As it began to set, I built it up to thickness of an inch above the face of the model, and then allowed it to set. I then put it over a low flame until perfectly dry. Then with a knife I cut a narrow groove from the center in front to the center behind, nearly down to the model. Then with one hand on each side I broke it apart, took out the model, and put the pieces together again, the fractures being so clean that when wired together the crack could not be detected.

This gave me a perfect impression, and we then proceeded to pour it with zinc. There was just enough plaster mixed with the sand to keep it firmly together, and as it was perfectly dry, I had no trouble with steam.

While my assistant poured the zinc, I gently tapped the impression and the slab on which it rested, exactly as we do when pouring a plaster model.

The result exceeded my expectations, for it gave a perfect die, entirely devoid of air bubbles or other imperfections.

The plaster and sand impression did not seem to suffer in the slightest, and might have been used again had we so desired.

The counter die of lead was made in the usual manner, and, of course, had to be pried off the zinc model.

The plate which I struck up on this die was the best that had ever left my office. Since then I have made several on this plan, and in each case have met with flattering success.

Should any of my brother practitioners try this method, or if they can suggest a better way, I should be pleased to hear from them.

Porcelain Crowns and Bridges.

By JOHN G. HARPER, D.D.S., St. Louis, Mo.

The advantage of porcelain crowns and bridges over those of gold, or gold and porcelain combined, is admitted by all. The difficulties in porcelain work have been overcome, so that it really requires no more skill in construction, if as much, as that required in making a Richmond crown. The Logan crown is one of the most artistic crowns, and serves a good purpose when placed on large roots as centrals, cuspids and single-rooted bicuspid. A perfect joint never was made between a root and a Logan crown, even by the expenditure of a great deal of time. Collar crowns can be made after the Darby style, using platinum in the place of gold for the disk and post, and porcelain in the place of solder

to complete the crown, and by the use of thin platinum the joint can be made perfect.

The collar crowns are made by using 28 G. P. platinum, lapping the joint and using pure gold or platinum solder, composed of pure gold four parts and platinum one part, always using as little solder as possible. The collar is fitted to the root then slipped off and a disk soldered to place, trimmed and replaced on the root, the hole for the post located and in or out of the mouth the post is fitted to place, soldered and should be allowed to extend sufficiently to hold securely in the impression.

**How to Take
Impression and
Articulation.**

An impression and articulation of the teeth is secured with modeling compound in the following manner: Warm in hot water sufficient of the compound, have ready a button with a thread attached; the thread is imbedded in the modeling compound and the button drawn against the lump of compound which is placed between the teeth, the patient directed to close the jaws until the teeth are in contact; now draw the button towards the teeth by pulling on the thread; this will press the impression material against the palatal surface; cool with water and remove; if the cap comes away with the impression, so much the better, if not, remove and carefully replace in the impression.

Before pouring the model, fill the cap partially with wax, and oil the post, to allow the whole to be easily removed without injuring the model, which is made in the usual way, the cap and post removed to make sure of its coming away readily after the tooth is attached with sticky wax.

**Making Crown
with
Porcelain.**

A tooth, rubber, plate or facing is selected, ground and fitted in place; sufficient sticky wax is flowed over palatal surface to secure the tooth to cap; this is hardened with ice water, the tooth, cap and post are carefully removed from the model and invested; after the investment is hard, remove wax, bend pins of the tooth to clasp the post, dry out, heat up and solder with pure gold or platinum solder, using as little solder as possible. Should much pure gold be used to solder, the gold may volatilize and cause the tooth to become pink.

When the case has cooled off, the investment is removed, the tooth boiled in acid, then washed in clean water to remove all traces of acid. The case is now ready for the body; Consolidated Dental Manufacturing Co.'s continuous gum body. The post is grasped by a pin vice, which serves as a holder. The body is wet with pure water to creamy consistency, using a glass slab on which to mix. A suitable spatula is used to carry a small portion of the body, which is placed on the pins and post; jar the piece by gently tapping the pin vice with the spatula; this causes the body to flow about the pins, post and into all small openings; it also

brings the moisture to the surface, which should be absorbed by linen, which is preferable to cotton, as fibers of the cotton may be detached and interfere with carving. The body is carefully built on to the piece until the proper size and contour is secured; the piece is allowed to dry and then removed from the pin vice, and placed on a slab in front of the furnace.

A carborundum or ruby stump wheel makes a good slab, the post of the tooth being placed in the hole of the wheel. The furnace used by me is Hill's Electric Furnace, 110 volt direct current. The piece is allowed to dry for a few minutes in front of the furnace, which is heating; the piece may now be allowed to heat up gradually by placing it just within the muffle and allowed to become red hot; next it is placed in the middle of the furnace, the door closed and after fifteen minutes inspected, if glazed, the door is closed, the current shut off and all allowed to cool. Should the body be of the same color as the tooth, one baking may be all that is necessary, but if any imperfections exist they must be corrected by a second baking. Manufacturers should supply us with body of different colors to correspond with those of the teeth used.

Bridge work is made in a similar manner as described above, an iridio-platinum bar being used to join the pier teeth and the pins of the teeth soldered to the bar.

In case a bicuspid root is used to support two bicuspids, the post is made L-shaped and the pins of the attached tooth soldered to the foot of the L.

Why not use platinum shell crowns as abutments for such cases as require them? Platinum is less conspicuous than gold.

The outfit necessary for such work consists of a furnace, a box of body, a few colors in enamel, spatula and pin vice, to which add patience and perseverance; every dentist is supposed to have the brains.





Alveolar Hemorrhage.

By R. W. TURNER, D.D.S., Philadelphia, Pa.

Case 1.

Mr. R., age forty-nine, came to my office one morning about nine o'clock to have the right inferior twelfth year molar extracted. Half the crown was gone and the gum very much inflamed.

After extracting, not more than the usual hemorrhage occurred. I syringed the socket with electrozone, and the patient feeling comfortable, soon departed for his office. At two P. M. he laid down for his usual afternoon rest. At three P. M. he arose and was surprised to find his mouth filled with a mass of clotted blood. Getting no relief from remedies used at home, he returned to my office at seven P. M.

I removed the clot, and syringed the socket with hot water, followed with tannin and phenol applied on cotton, retaining in place by more cotton and cork and opposing teeth. At the expiration of half an hour I removed the compress, and finding the blood still flowing I syringed the socket, sprinkled in sub-sulphate of iron, placed in pledget of cotton dipped in phenol, followed by another piece dipped in sandarac, packing well down in socket. I allowed this to remain for about forty-five minutes, and upon examination found that the hemorrhage had not subsided but still continued to flow from inside and around margin of socket.

After two hours effort, I failed to arrest the hemorrhage, and the patient was continually growing weaker from loss of blood. I was about resorting to a compress of plaster, when the thought occurred to me that, perhaps, an application of aromatic sulphuric acid might prove effectual as a styptic. I had never used it before in a similar case, but realizing its value for other purposes, I resolved to try it, hoping it would prove effectual in controlling the hemorrhage.

I washed out the mouth with warm water and applied several drops of the acid in the socket with very pleasing results. In three minutes the flow ceased. I had him remain for half an hour, and the hemorrhage

not returning, he departed with instructions to be particularly careful, and if the hemorrhage returned to send for me at once.

At ten A. M. the next day I sent to inquire about him. He was at his place of business feeling very comfortable, and had no return of the hemorrhage.

Another case which occurred shortly after, was
Case 2. a young girl, age sixteen. I extracted the lower twelfth year molar. There was nothing unusual in extracting or in the hemorrhage which followed. This was on Friday, A. M. The hemorrhage started Saturday morning, but the mouth was kept comparatively clear by rinsing. Sunday morning a dense clot had formed, filling the mouth, and her mother, very much alarmed, brought her to my office. The patient was very nervous and fearful that if I removed the clot, she would bleed to death.

I, however, quieted her fears, and upon removing the clotted blood, a considerable flow from the socket of the extracted molar was revealed. Syringing this out with hot water, I packed with cotton saturated with tannin and phenol. Waiting twenty minutes, and the flow not ceasing, I removed packing, washed out the mouth and placed several drops of the acid in and around the edge of the socket. The flow soon ceased, and in fifteen minutes the patient departed.

No sloughing of tissue occurred in either case.

Alveolar Hemorrhage.

By H. P. BACHMAN, D.D.S., Mexico, Mo.

On the 18th of June I extracted twenty-two teeth for Mrs. F., whom I afterwards found to be a Christian Scientist of the deepest dye. Her teeth were all very hard to extract owing to exostosis, especially the inferior anterior teeth and right inferior first bicuspid.

She got along very well, and was not in the office a half hour when her husband called for her and she left, but before doing so I instructed her to use plenty of hot water and salt as a mouth wash until her gums were healed.

I heard nothing more of her until the following Saturday evening, when the Christian Scientist and Mr. F. came to my office and asked me what was causing Mrs. F.'s mouth to bleed as it had started early that morning. He said he had been with her the greater part of the day, but had failed to stop the bleeding. I told them the cause and what would need to be done to stop the hemorrhage.

About ten o'clock that evening, Mr. F. came after me in great haste. I picked up my case and went with him, and upon getting near the house the healer came forth to meet us, dancing with joy and declared she had controlled the fear and that the bleeding had stopped.

Paying no attention to this declaration, I made an examination and found the hemorrhage to be from the sockets of the inferior right lateral, cuspid and first bicuspid, and the mouth to be full of great stringy clots. The bleeding had slackened to a light oozing, and hence the healer's joy; but while I was having water heated, the hemorrhage set in very profusely again, and upon examination I found the mouth very offensive. The woman had used nothing but cold water (the hot water and salt being medicine). She had very nearly bled to death, not having strength left to lift her head without help, her pulse being so rapid the beats could scarcely be distinguished. She had taken no nourishment that day.

The water being hot, and against her instructions I took nearly an ounce of tr. ergot, an antiseptic tablet in a tea cup of hot water, and made her rinse and hold in her mouth for nearly ten minutes. Then I used per chloride of iron very profusely in the bleeding sockets, and while her husband was getting her some nourishment which I ordered, I had her use more hot water and ergot. By the time the food was ready there was no bleeding or clots.

Upon the urgent request of Mr. F. I remained all night, and upon the request of Mrs. F., the healer also remained. Since then there has been no further trouble, but the Christian Scientist healer claims all the honor of saving Mrs. F.'s life.

This is the only case of hemorrhage I have ever had, and when I went to the house I fully expected to have to pack the sockets and bandage. Had I been called early that morning, I could have saved Mrs. F. the loss of blood and the weakness which followed.

Crowning a Fractured Root.

By JOHN M. FOGG, D.D.S., Philadelphia, Pa.

The following brief description of a case in practice, serves to illustrate the possibilities of tooth-conservation under very adverse circumstances.

The patient, a young man, aged eighteen, had been struck in the mouth by a baseball, breaking off the crown of the right superior central. Previous to this accident, the tooth had been extensively decayed and abscessed. A Logan crown had been set with gutta percha shortly after the accident, the abscess having received no treatment.

The crown soon loosened and dropped out, and the case then came into my hands. At this time there was extensive inflammation and swelling present in the surrounding soft tissues, and it was discovered that the root had sustained fractures upon both its lingual and labial aspects, dividing it nearly in half. The expansion of the gutta-percha, with which the crown was set, had forced the two pieces of the root apart to a decided extent.

The first consideration was a thorough sterilization of the root and soft tissues and a reduction of the inflammatory conditions.

This was accomplished by means of the electric current as follows: A one to four hundred solution of formaldehyde in hydrogen-dioxide was applied on cotton, with the current, high up in the canal.

This for the purpose of sterilizing the soft tissues in the apical region. The canal was then lined with nitrate of silver, as suggested by Dr. Bethel (care being taken to protect the gum from its action), and a dressing of the formalin solution sealed in place.

Following this, an application was made to the gum of a saturated solution of potassium iodide. At the next visit it was found that the inflammation and swelling had subsided. It then became necessary to reunite the two pieces of root and hold them in their normal positions. The walls of the canal were roughened and slightly undercut.

The pieces were grasped by a pair of thin-beaked forceps, drawn steadily together, and held in position by the assistant, while a waxed silk ligature was passed around the root, under the gum and firmly tied. The mouth was thoroughly sprayed with three per cent. pyrozone, the root canal dried and filled with amalgam, leaving an opening for the post of a crown. The ligature was allowed to remain in place until the amalgam hardened, when it was removed, the amalgam holding the fractured parts firmly together.

A Richmond crown was then made with the band fitting tightly to the root and set with cement. This crown has now been in place for three months, and gives promise of remaining indefinitely. It is worn and used with entire comfort.

Ordinarily, under the circumstances just described, the extraction of the root would have been deemed inevitable. The case was undertaken, however, at the patient's earnest request, and with but slight hope of success.

The result justifies the attempt, and points to the conclusion that many roots are sacrificed which might, with care, be saved and crowned.



Habitual Mal-Occlusion.

By WM. E. TRUEX, D.D.S., Freehold, N. J.

Read before the New Jersey State Dental Society at Asbury Park, July, 1899.

During my career as a dental practitioner no one thing has forced itself upon my attention as much as the injuries done to tooth structure, the failure of contour gold work, the change of position of all porcelain crowns, and the breaking of porcelain facings, due to what I may call habitual mal-occlusion of the teeth and jaws.

In the natural occlusion we suppose the six superior anterior teeth to close over the six inferior anterior teeth, leaving the molars and bicuspid resting, or nearly so, upon the occluding surfaces. I wish to call attention to some of the results of an habitual unnatural occlusion, that is, in cases where the occlusion should be, and generally is, a natural one, as we understand it, but when, for some reason, the natural position of the lower jaws is so changed that the six inferior anterior teeth are made to come in *contact* with the six superior anterior teeth in a position that cannot be considered natural, and when in this position the molars and bicuspid are not in contact, and when in such position if the muscles are contracted the force of the occlusion is upon the anterior teeth alone. I believe the placing of the jaws in this unnatural position is generally an involuntary or unconscious act, and is effected, for the most part, during sleep, or when the mind is deeply engaged, or when tired or exhausted from expenditure of nervous energy. To this mal-occlusion is due, I am fully convinced, many of our failures in "contour work" with crowns, and with porcelain facings in connection with crown or bridge work, and to the return to the former positions of many teeth after regulating appliances have been removed.

This condition is not often sought and too often overlooked when failure is present. By a careful study of the occlusion of each patient as he comes into our hands, endeavoring to find out each position that the

jaws may be closed in, and carefully looking for abraded surfaces, we can easily determine whether or not there exists this "habitual mal-occlusion." If it is found, we are then in a position to put into use whatever remedy may seem best, and thereby save ourselves chagrin and perhaps pecuniary loss.

**Contour Filling
Broken by
Mal-Occlusion.**

To illustrate, I wish to call attention to a case or two that has come into my hands, and hope I may make them clear.

During the first year of my practice, I filled for a young woman a right superior lateral on the anterior approximal surface with a large contour gold filling. I was exceedingly anxious, for obvious reasons, to make a nice-looking filling, as well as a lasting one, and to this end spared neither time nor energy. The tooth was a devitalized one, anchorage was easy to obtain, and when the filling was completed I was pleased with the result. About a month elapsed when the patient presented herself with the larger portion of the filling wrapped up in a piece of paper and tucked away in her pocket-book. I was astonished and a good deal chagrined at the condition, and at a loss to account for so signal a failure. However, I removed the remaining portion of the filling, and refilled the tooth again with as much care as at the previous sitting. The cause of the trouble was a mystery to me, and all the more so as the patient assured me there had been no violence of any kind to her knowledge. While engaging her in conversation after the operation, I noticed a peculiar motion of the lower jaw, as if it were pushed forward, and catching upon some point, suddenly drawn backward; I made a careful examination and discovered that the lower cuspid on that side was slightly rotated, and that when the lower jaw was pushed forward and the teeth brought together, the point of the lower cuspid rested upon the contour gold filling; that it was the only point of contact, and that the filling was already nicely burnished at the point of contact. It was but the work of a moment to grind off the point of the lower cuspid a little, and today, fifteen years later, that filling is doing service.

**Irregularity
Caused by
Mal-Occlusion.**

I have brought with me two sets of models of a case of irregularity that came into my hands a few years ago for correction, and as I pass them around you will notice the irregularity. The two superior centrals are turned slightly backward and the superior laterals are slightly protruding. The lower anterior teeth are slightly irregular, but the occlusion is normal when the teeth are in the natural position. To correct this irregularity was a simple thing indeed, and it was easily accomplished. A stay plate was made and worn about three months,

when, the teeth being reasonably secure, it was removed, and immediately the teeth began to assume their former position. The regulating appliance was again resorted to, and the centrals again put in line with the other teeth, and the stay plate again worn for about four months. When removed again, the teeth once more began to return to the irregular position. The stay plate was again put in position and worn for about three months, and when removed they rapidly returned to the original position. I was at a loss to know the cause of the return of these teeth to the former position, and the young woman refused to have anything more done to them. I still had the care of her teeth, however, and it was not until a year or two afterward that I discovered what I believe to be the cause of the return of the teeth to the original position. The models marked No. 2 will show the cause. The patient had the habit, when listening to conversation, when reading, or when in meditation, of protruding the lower jaw, catching the superior centrals with the inferior incisors, and contracting the muscles with sufficient force to cause the superior centrals to be drawn backward and out of line, and also forcing the superior laterals *slightly* forward. For this case I do not know a remedy, and hints as to the best course to pursue might provoke an interesting discussion. The case remains today as in models No. 1, and the only other point of interest is that when the patient has been subjected to any unusual expenditure of nervous energy, the superior centrals will become sensitive to pressure.

A modified form of this same mal-occlusion has been, I believe, the cause of the almost total destruction of several full vulcanite dentures, worn by a woman of middle age, and of exceedingly nervous temperament. I afterward made her a gold plate with vulcanite attachments, which she shortly destroyed, even splitting the plate. I then re-enforced the plate with gold and iridium wire, and made the vulcanite attachments as heavy as was practical. The attachments in this case were broken and renewed. I was thoroughly convinced that the patient caused the destruction of the plate, not as a result of natural use, but by resting the lower natural teeth upon the upper artificial one, and by contracting the muscles, exerting all the force possible, and with astonishing result. As she asserted most positively that neither she, nor any of her family, had been able to observe any such muscular contraction, and she had given the matter considerable attention, at my suggestion, I requested her to remove the plate at night, and as a result, it is doing all that is required of it.

I have given this matter careful consideration for a number of years, and I am almost daily astonished at the many heretofore, to me, unexplainable conditions that I find, which can be accounted for by looking for this habitual mal-occlusion.

Aseptic Environment.

By M. L. RHEIN, M.D., D.D.S., New York, N. Y.

Read before the New Jersey State Dental Society at Asbury Park, July 21, 1899.

The reigning power in the healing art for the past few years has been bacteriology. Every few months the medical world has been aroused to fresh incentives for combatting disease by the discovery of some new specific germ. No branch of medicine has more quickly grasped the value given to the practitioner by recent bacteriological researches than dentistry. From the moment when the discovery of Koch's tubercle bacillus was heralded throughout the world, dentists have been keenly alive to the value of antiseptic practice. No germicide is introduced that does not, at once, make its *entree* by some form or other into dental practice. This is not remarkable when we stop to consider that the mouth is constantly filled with myriads of bacteria of so prolix a variety that, notwithstanding all the study that has been given to them, up to the present time, we are today in ignorance of a vast deal of important information in regard to them. The result of the magnificent work in this direction which we have received from Prof. W. D. Miller, has served to immortalize him as the inspirer of modern aseptic dentistry.

Nothing illustrates this better than to contrast the treatment of pulpless teeth, as it was generally practiced twenty-five years ago, with the recognized treatment of the present day. At that time, any work involving the root canals of a tooth was dreaded by the practitioner. To-day, all such work is commenced and finished with the ease and certainty of success that must ensue where due precaution is taken to eliminate every source of infection.

In a like manner, the value of antiseptic treatment has fostered the emulation of men to devise means and methods for preserving the life and usefulness of teeth loosened in their sockets, and suffering from the various forms of pyorrhea alveolaris. The enormous increase in the number of teeth involved in these conditions, which are preserved to human kind at the present day, can be traced directly to the stimulus gained from the results of bacteriological research.

Taking it for granted that no one will interpose an objection to the importance of conducting a dental practice on lines in accord with our present knowledge of the dangers that may be feared from the various micro-organisms, I shall merely present to you some practical points on this subject. To aim at the ideal and fall short is far preferable to remaining impassively in the slough of mediocrity.

**An Ideal
Operating Room.**

The ideal operating room should always be situated with a due consideration for proper light and ventilation. By most men this is meant to include a sufficient modicum of sunlight. There should also be within convenient reach running water, to the arrangement of which the most careful attention is necessary so as to preclude any possible source of sewer infection. These observations, like many that are to follow, are made with reference to the preservation of the health of the dentist as well as that of his patients.

The very prevalent use, with its great conveniences, of the fountain cuspidor, has made it necessary to pay especial attention to the necessity of the most painstaking plumbing of this article. Perhaps the most practicable way of installing this cuspidor is to arrange the outlet so that it does not empty directly into the sewer, but to leave the waste pipe open at its end a few feet above a sink. In this way all danger of defects from traps, etc., is avoided.

Too great attention to the absolute cleanliness of the operating room cannot be given. A thorough daily cleaning is an absolute necessity. Remembering that this is practically the living room of the dentist, it is asking too much of him to keep it in the aseptic condition of a hospital operating room, but as far as possible every effort should be made to see that it is furnished in such a manner that disinfection of the entire premises is readily attainable. When we stop to consider the ease with which our various patients can leave the germs of infection in our offices, the importance of this suggestion is at once apparent. All heavy hangings and carpets, or any permanent coverings on the floor should be avoided. The floors of an operating room should be of tiling or hard wood, or some similar substance that can be thoroughly cleaned. Rugs or mats which can be readily removed and cleaned can be placed on the floors. All instruments used in the mouth of the patient should be carefully kept in proper receptacles out of sight, and protected from dust and moisture. It is needless for me to say that the operator should keep himself in such a hygienic condition of person and raiment as to be always agreeable to the patient, so that we may expect a similar action on their part. Nothing is more objectionable from an aseptic standpoint than the too prevalent custom of operating in an ordinary living coat that has been worn everywhere. A most admirable habit, followed by many, is to wear in the operating room a coat of white duck which is frequently changed for a clean one fresh from the laundry. This same rule should apply to any assistant or attendant that may be in the room. Women who may be present as assistants or operators, should be attired in white aprons having sleeves extending from the wrists to the shoulders.

In commencing work of any nature, it is often valuable to first thoroughly spray the mouth of the patient with some efficient germicide. In this age of phophylaxis, the greatest good that we can do for our patients is to instill into them as deeply as possible the real value of a proper hygienic care of their mouth. It is idle to expect patients to follow directions that are given to them by men who constantly violate these precepts in their methods of procedure in the operating room. The aim of the dentist should be to make every act of any operation a true object lesson to the patient. Such a course of procedure, when combined with the proper instruction, cannot fail to make a lasting impression upon the patient.

It is needless for me at this time to dwell on the importance of adjusting the rubber dam before operations are performed upon individual teeth, nor to enter into the details of the care that should be given to the aseptic condition of each particular instrument. Neither do I intend to dwell at length upon the necessity nor the various methods of sterilizing every instrument that has been used upon a patient. These are facts that you are all familiar with and you are conversant with the importance of proper attention being given thereto. There is little doubt that the number of men who violate these necessities of practice is rapidly decreasing. The essential point of bringing these well-known truths to your notice is for the purpose of impressing upon you the inestimable value that your patients can derive from these minutiae of practice, if their attention is properly directed thereto.

**Hygiene of the
Oral Cavity.**

One of the most unpleasant incidents in practice, and one which occurs much too frequently, is to perceive, upon the examination of a patient, that very efficient services, perhaps of yourself or some other dentist, have proved of no avail in the ultimate preservation of the teeth through the lack of attention on the part of the patient to the proper hygienic care of the mouth. It makes but little difference how freely we cut away our approximal surfaces, leaving only the solid gold to come in contact, if the patient belongs to the too common class who keep the decomposing débris of their meals fermenting around the necks of the teeth. No sight is more heartrending to the conscientious operator than to see hours of the most difficult work, executed at the time with the greatest artistic skill, and with unwearying brain labor, destroyed by the neglect of the person in whose mouth these unappreciated works of art have been placed. Where already through the loss of some of the natural teeth, magnificent specimens of prosthetic art have been placed in position to restore to the person the benefits to be obtained from a complete and proper occlusion of the teeth, we see the value of these dentures not only

destroyed, but ruin of surrounding tissues following in their wake on account of the complacency with which so many people can endure a mouth reeking with filth.

If conditions as bad as these result from a lack of attention to the cleanliness of the mouth of a person in average good health, what must we expect the result to be in the mouths of those persons who are not in good health, and where a diseased condition of the soft tissues and the sockets of the teeth have already set in. These are the cases where so many dentists pronounce a hopeless verdict, and tell their patients: "Nothing can be done for you. It is only a question of a short time before you will lose all your teeth."

We are all accustomed, more or less, to throw the entire responsibility of this violation of aseptic environment upon the shoulders of the patient. It is only too true that a certain portion of mankind appears to be incapable of appreciating the value of cleanliness of the oral cavity. There is, however, by far, the greater proportion of these unfortunates whose misery and discomfort is brought about entirely through ignorance on their part. What a weight of responsibility must rest upon the consciences of those dentists who see the mouths of their patients ruined, because they have not taught them the lesson of hygiene. The common excuse of many such men is that they cannot afford to give to the patient the time to properly instruct them, because they cannot expect for this purpose any remuneration. No labor performed for a patient is more valuable, nor worth a greater price, than time given to properly impress and teach in every detail the routine of ordinary oral hygiene.

The importance which this lack of attention to the aseptic condition of the mouth plays as an important factor in the destruction of the dental organs, made such a profound impression upon me in the very commencement of my practice, that I have endeavored from the very beginning to make it the keystone of all dental work. Except in pressing emergencies, it should be the rule before undertaking any actual dental operations, to first see that the teeth are thoroughly cleaned. This means at least from two to perhaps six hours of difficult, painstaking labor, in what might be termed ordinary mouths. How few mouths receive this proper cleaning in the dental office, and yet it should be done in every mouth before any work is undertaken, or before it is possible to properly instruct a patient in the means to be followed by them in order to keep their mouth in a sanitary condition.

Again comes up the cry of the difficulty of proper remuneration for the time necessarily expended in such service, which time, or a fraction thereof, must be again employed in the same manner, and in the mouth of the same patient after the lapse of six months or a year, in order to keep up

a proper aseptic condition. The same reply can be made here as is given in regard to the time spent in instruction; that anything in the line of an operation is more or less valueless if hygienic conditions are neglected. A more potent objection meets the practitioner whose practice has reached any magnitude, in the fact that he feels that too much of his time is expended in work of so simple a character, and that, proportionately, he is prevented from serving a larger *clientele* with the skill he feels himself master of, but which he nevertheless recognizes will be wasted, unless he gives a certain number of his daily hours to the routine work of removing salivary calculus and thoroughly polishing the surfaces of the teeth.

Some years ago the impression made upon me
Cleansing to be by the number of hours that I was compelled to give,
Intrusted reluctantly, to this work, was so deep, that I felt it
to a Special Assistant. necessary to adopt some system, by means of which
 this burden would be removed from my shoulders.

The results of the method adopted by me have been far beyond my expectations, and have been so satisfactory that I feel it will be invaluable to those who recognize the necessity for the time spent in this labor, and yet give it grudgingly and with little contentment to themselves. I soon found that it was a comparatively easy matter to teach a proper assistant to do this work in healthy mouths. Of the different kinds of assistants, I believe this work to be especially adapted to women. At the present time, in my practice, three days of the week are set apart, in which time a female assistant occupies herself with nothing but the cleaning of teeth. It has been practically demonstrated by this procedure that such an assistant confining herself to this class of work, becomes more skilful daily, and accomplishes, after a while, better results than the dentist ever dared to expect. At the same time, in her hands can be placed the duty of giving proper instruction to patients. Her work is to teach each one exactly how a tooth brush should be manipulated; to have the patient brush his teeth and gums in her presence, in order to see that her directions are properly understood. She imparts to all the knowledge of the importance of brushing their teeth as soon after partaking of food as possible. She warns them against the indiscriminate use of dentifrices, or mouth washes, the composition of which they are ignorant. She tells them what the important constituents of a dentifrice should be, of the necessity of their being compounded of the purest materials, of the value of their antiseptic and antacid qualities, taking practically the same ground with mouth washes, and, finally, impressing upon the patient the fact that the dentifrice and mouth wash should only be used as prescribed by the dentist, in the same manner as any medicine prescribed by the physician.

In this respect, especial attention is directed to the fact that it is pos-

sible and practicable to give to the patient the services of such an assistant at a much lower fee than it would be necessary for the practitioner to charge, if he were compelled to devote his own time to the work.

Many forms of simple unhygienic conditions of the mouth are frequently classified as cases of pyorrhea, and these cases may justly be termed pyorrhea simplex. They often present a much more purulent condition than is seen in pyorrhea complex, where a vital disease is the direct cause of the retrograde metamorphosis which is in progress, and where the prognosis is more or less grave. In pyorrhea simplex, a favorable prognosis is not only always possible, but a speedy cure can be assured. Unless presented by a new patient, such a condition of pyorrhea simplex should never show itself, and cannot if such a system as outlined is followed.

It must not be assumed from what has been mentioned that this work is turned over entirely to an assistant without paying any further attention thereto. The dentist should always remain as supervisor and director of the work. There are mouths in which all the teeth can be properly and efficiently cleaned at one sitting. These, however, present in the mouths of the great minority. The great majority require two sittings, and then we meet those mouths radiating from these conditions to where many sittings are required before the mouth of the patient can be said to be in a clean, healthy condition. It is therefore necessary for the dentist to carefully lay out the character of the work to be done for each patient, observing it carefully before the sitting is closed, in order to be satisfied that his directions are properly carried out.

During the course of this work the assistant uses one of the ordinary diagram charts, by means of which an accurate account is kept of what are cleansed at different sittings, and at the same time any defects in structure or fillings, or other points of interest are carefully noted on the charts. When the teeth are finally polished, it requires comparatively little time for the dentist to make, by means of the aid of the charts, a very thorough examination of the mouth, in order to determine as to the necessity of any dental work on any of the teeth.

The observation and direction which must be given to such an assistant, must necessarily vary according to the skill and experience of the assistant. By means of patient, careful supervision of each little detail at the commencement, the average young woman will soon develop a most surprising degree of efficiency, and results will be attained that rarely fail to win the patient's warmest approbation.

What has been here outlined should not be confused with the custom of many operators who employ assistants and turn over the cleaning of teeth to them as a portion of their other work, without any especial super-

vision of the same. The results obtained in this manner will never equal what is accomplished by a woman who is trained to make this work a specialty.

It is not the purpose of these few lines to enter into the details of cleansing operations in the mouth, nor the various means used for the prophylactic care of the dental organs. There are treatises and papers by the score dealing with all the necessary details of this subject. The object is to call to your attention a method which, if systematically pursued, will not only relieve the busy practitioner of one of the most disagreeable portions of his work, but also render possible a condition of aseptic environment of the teeth of all his patients which, under other conditions, one could never hope to see accomplished. At the same time, it is necessary, if we are to expect our patients to practice the lesson of hygiene, that we pay the necessary attention to the aseptic condition of our instruments, assistants and all surroundings.

Experiences with Split and Perforated Roots.

By N. M. CHITTERLING, D.D.S., Bloomfield, N. J.

Read before New Jersey State Dental Society at Asbury Park, N. J., July, 1899.

In the course of a dental practice we are often called upon to save or feel that it is necessary to save, either from aesthetic motives or because of the value of the member, a badly decayed or perforated root, and my excuse for this paper is that I wish to describe a mode of procedure that has up to the present time not caused me one failure, and has many times made me glad that I was a dentist. What I am to describe may not be new to all present, or to any, in fact, but I have never myself come across any writings describing the operation as I perform it.

Very frequently we are asked, "Doctor, is it not possible to do something for this root?" Examination finds either a bicuspid or one of the anterior teeth (we will discuss molars later) having a root perhaps partially covered by highly inflamed gum tissue, and the root filled by a fungus growth. In passing a probe between this growth and the canal wall, we find that one side of the root is perforated and our growth is from the gum. This growth is always highly vascular and it is necessary to remove it immediately. This I do with a sharp lancet, and check the hemorrhage with hot water and stop it finally with a dressing of the aromatic tincture of red gum on cotton. Then I open up the root, treat-

**Perforations
of Anterior Teeth.**

ing the pulp canal in my usual manner, and after packing the canal to prevent the gum from once more encroaching, I dismiss the patient until another day. At the next sitting, providing there is no abscess present, and these cases are generally abscessed when they come into our hands, I fill the apical foramen with a gutta percha cone, and taking a thin piece of gutta percha, fit it over the perforation, if the perforation is on the side, and fasten it in place generally with balsam or chloro-percha, and I may here remark that this is easier in the telling than in the doing. A piece of iron wire is now selected and cut just a trifle longer than the root. This is heated and dipped in wax, according to a suggestion in the *Cosmos*, and worked into the gutta percha in the apex, to hold it. Now alloy is packed firmly around the wire, until the root is thoroughly filled, leaving enough of the wire projecting to be grasped by the plyers, and a new appointment made, when the alloy will be thoroughly hardened. By heating a pair of plyers and grasping the wire the wax is softened and the wire is withdrawn without trouble, and your root is ready for a crown.

In cases where the perforation is from the cervix, after the apex is filled, it is necessary to fit a band around the root just under the gum margin before the alloy is placed.

**Treatment
of Molars.**

Where we find the roots of, say, an upper sixth-year molar with perforation (in one case I bound the roots together where one, a buccal root, was detached), my method is to make a band that will fit as tightly as possible, cover the perforations with gutta percha, place posts in the root canals and fill my band in with alloy. This makes a very serviceable crown and one that will be appreciated by the patient.

As to the permanence of these operations, the first one was done five years ago, which case will be the first described, and the other cases have been treated since that time. In all these described cases I have had the pleasure of observing results from time to time, and can say from observation, that I have been more than delighted by the results. In no case is there any unhealthy appearance of gum or soreness of the tooth.

In the cases referred to, the split roots were not cases where the root was entirely split in two pieces, but where one side was split or cracked from the pulp canal, leaving the other side intact, and the perforations in all the cases were due to caries.

Following are records of some cases and the description of the operations:

Case 1.

Left upper sixth-year molar crown entirely gone; the three roots in place, but the palatal root separated from the two buccal roots. The roots

were opened with Donaldson broaches, the débris removed, and a ligature bound around them to remove the gum, that had grown up in the space between the roots. At a subsequent appointment were thoroughly cleaned by use of the Gates-Glidden drill, treated and sealed with test fillings, and at the final appointment a gold band was tightly fitted around all three; gutta percha pressed out a little thicker than paper was placed over the exposed gum, and the band filled with white amalgam.

Superior cuspid root, right side entirely covered by gum, with the exception of a small point of enamel which projected above the gum. A lancet removed the growth, exposing the neck of the root, the pulp cavity entirely filled with granulations, and the tissue of the circumference of the root hardly thicker than cardboard. This was packed with cotton, and at the next sitting the growth had entirely disappeared, the walls of the root were spongy and of the consistency of punk, and were bleeding from a large perforation about one-eighth of an inch from the orifice. As much of the soft brown decay as it was deemed safe was removed, the root cleaned to the apex, treated, and another appointment made. At the next sitting the apex was filled with a gutta percha cone, a thin sheet of gutta percha placed over the perforation, a piece of wire heated and dipped in wax was pressed into the gutta percha at the apex, and the canal filled with amalgam. At the last sitting the wire was withdrawn, the opening enlarged for a post, and a crown was made and in due time inserted. This case has given satisfaction for five years.

Right superior cuspid—case very similar to last, but complicated by abscess, which required several treatments to effect a cure. When finished, supported the abutment of a bridge, and for the past two years has given perfect satisfaction.

Superior first bicuspid tooth not vital, both roots having been filled some time previously, but an encounter with a nut had split the tooth in two very neatly, almost exactly at the bifurcation, leaving the two halves of the crown. The tooth, I might say, had carried a large gold filling. A wire ligature was fastened tightly around the tooth, bringing the split halves together, and the incising forceps removed part of the crown; the remaining portions were polished by sandpaper discs, as abrading by stones was too severe on the split pieces, and the sides made as nearly vertical as possible, when a gold band was fitted tightly around the whole remaining parts, and filled in with amalgam. At a subsequent time, undercuts and retaining pits were made in the hardened amalgam, and cusps built on with cohesive gold—the result having the appearance of a gold crown. There

was never for a minute after the roots were ligated together the least suspicion of periostitis. The relief was very marked after the ligature was applied. This operation was done eighteen months ago, and the tooth is as firm in the alveolus as any in the denture. The result was rather surprising, as the halves were quite loose when first examined.

Cases. Superior central incisor—large perforation, complicated by a split through one side of root; the canal filled with granulation. After proceeding as before described, a gold band was tightly fitted around the root, the opening covered by gutta percha, and the root filled with amalgam. At a subsequent appointment a Logan crown was fitted and cemented in place. At the present time the case is giving satisfaction and the tooth performing its function perfectly, though I do not think it will be satisfactory or as lasting as some of the cases described previously; but if the operation prevents the wearing of a plate for only a few years, I shall consider the result satisfactory.

In view of my experience in these cases, it seems to me that a great number of valuable teeth might be saved that are now extracted. While I do not hold that all split or perforated teeth may be saved, or should be saved, I do hold that we may and should save a great many that are now condemned, and I have yet to see a case where unpleasant results have followed the operations described. In all the cases described I have been particularly interested in observing how perfectly the tissues tolerate gutta percha. I have never seen a case of periostitis, or inflammation of any kind, following the application of the gutta percha patch over the perforation, and without this valuable material it would seem to be impossible to achieve the results described.

The Cause and Prevention of Dental Decay.

By GEO. HOWE WINKLER, M.D., D.D.S., New York.

Read before the New Jersey State Dental Society at Asbury Park, July, 1899.

The cause of dental decay is a subject that has been so much speculated upon and theorized about that the discussion of it seems almost like the threshing over of old straw; yet the importance of the subject, especially in the light of recent publications, justifies us in continuing our investigations, more especially as we know that in the searching over of old materials new values are sometimes discovered. The farmers of the South for over one hundred years used the cottonseed for fertilizing purposes only.

not realizing that the oil which these seeds contained constituted a crop worth several millions of dollars annually.

The various theories that have been held in regard to dental decay, involving the ideas of inflammation in the organic matrix of the tooth, as well as the bacterial destruction, have been advanced and maintained by their several advocates in arguments so convincing as to insure for each theory a large following. But these theories are incorrect because they are conclusions drawn from the evidences found in the mouth where dental decay is in a state of progress and not in its incipency.

The microscopic and clinical researches of Prof. Miller, of Berlin, and of Dr. Leon Williams, of London, and the profound and extensive experiments and deductions of Dr. G. V. Black, of Illinois, have fixed in the minds of most members of the profession the idea that acid producing bacteria are the cause of decay. There is no doubt that the very able experiments and writings of Prof. Miller were absolutely accurate in stating conditions as he found them in the mouth, and the marvelously beautiful microscopic slides of Dr. Leon Williams show bacteria in their destructive work, but the conclusions which these gentlemen drew, I am sure, are wrong.

We know from their teachings that bacteria excreting acid and boring into the tubuli of the teeth are to be found in nearly all cavities of decay, but they are also to be found sometimes in limited numbers, and oftentimes of inoffensive character, in nearly all human mouths. Dr. Black engaged in the most extensive series of experiments and carried them out with a masterful intensity of purpose, and from the results drew conclusions that constitute, in my opinion, a most profound and able contribution to the literature of dentistry. Starting his research from the conditions in the mouth which are within the reach of human knowledge—chemical, microscopic—tangible—he worked up to the very portals of truth, when in speaking of the apparent lack of defensive proteids in the mucous secretions and saliva of some persons, and of the lack of the proteids at some periods and not at others in the same person, and especially of some ages, as of the years of puberty and of periods of pregnancy, he says, "Taking this view of the condition" (that is that the lack or presence of defensive proteids in the secretions of the mouth account for the destruction of the healthy integrity of the teeth, and that lack or presence is due to a constitutional condition) "dental caries becomes as truly a dyscrasia as rheumatism or gout," and he was absolutely right.

I purpose to show why I believe he was right, and to place it in the power of every dentist present to prove the truth of his conclusion in that particular.

Dental Caries
Due to
Dyscrasia.

Dental decay is due to a dyscrasia, which can be recognized in its incipency by some of its symptoms only. The evidence of decay in the tooth is not the cause of the decay, it is but the progress of the disease—the recognizable stage of the morbid condition just as the eruption on a fever patient defines the character of the patient's sickness. The cause of dental decay is a condition in the system that is too subtle for human knowledge to grasp. The earliest symptoms of the dyscrasia that we can detect are discovered in the perverted secretions of the oral cavity, by means of litmus paper when acidity prevails or by the physical appearance of the fluids there, such as slimy deposits on the teeth or saliva which is thick, ropy, gluey, as well as acid—sometimes by swollen, spongy, bleeding gums accompanying white decay—a disagreeable taste in the mouth in the morning and at times an offensive odor on the breath. Similar stages of disease exist in the case of many sicknesses. A person sick with smallpox has the disease recognized when the eruption has become well developed, but the cause of that eruption was certainly in the system when the patient first began to feel droopy or exhibited a slight condition of fever. The skin destroying pustules on the surface were not the cause of the smallpox. They simply represent a stage in the progress of the disease, which defines or classifies the dyscrasia. So it is with decay of the teeth. When we are able to see it, and under the microscope find the acid-producing bacteria performing their functions—that is a stage in the disease, but not the cause of it.

Treatment
for Prevention of
Dental Caries.

The treatment of the dyscrasia which is the cause of dental decay is marked in some instances with such remarkable curative results and benefit that it simply corroborates what is here laid down, and elevates my deduction and statements from the realm of theory to the plane of fact. I am advancing no theory. I am simply stating facts which can be corroborated and proven by any one who will follow the accompanying directions for treatment. These conditions in the mouth must be treated from within, because they are not due to a diseased condition of the mucous glands or the salivary glands, but to the condition of the blood or the abnormal state in the system. The only way that the mucous glands could be arrested in their excretion of these viscid and foul exudations would be by destroying them, and that would not relieve the system of the condition. These glands in throwing out the perverted and viscous secretions are only performing the natural function of elimination, and they will continue to perform that function as long as the blood contains these poisonous products and they themselves retain their health and power to work. When chlorate of potash, for instance, is administered

internally, in a few minutes after the administration the drug can be found by tests in the saliva. That is certainly not due to any defect, or any disease in the glands, but to the condition in the blood, and the evidence of it in the saliva only ceases when the potash has been entirely eliminated. The treatment for the prevention of decay must be a treatment directed to the cure of the systemic condition, which is the incipient stage of the disease, and we must be guided in that treatment by the symptoms presented in the mouth. I administer internally for the prevention of decay but four remedies. These I give in homeopathic triturations, and generally in what is known as high potencies—the two-hundredth being my favorite.

For corrosive acid excretions from the mucous glands which disintegrate and destroy teeth with a rapidity greater than can be produced by the aid of micro-organisms, the homeopathic trituration of creosote is a specific, administered in small doses, eight or ten doses per day at intervals of an hour when a low potency, such as creosotum 6, is used. If given in very high potency the remedy can be administered in one dose at night upon retiring, and one dose in the morning upon rising and before eating. The creosotum in addition to immediately arresting the acid excretions of the mouth produces a most wonderful and beneficent action upon the organic matrix of the tooth. Given night and morning in high potency to patients whose teeth are exquisitely sensitive it greatly relieves the sensitiveness, so that dental operations are rendered almost painless within a week's time while the dentine seems harder under the instrument.

For the white or light brown decay, found in the mouths of children or patients in their teens, and of pregnant women, the trituration of lime, carbonate of lime, calcarea carb., or phosphate of lime, calcarea phos., in alternation with creosote is wonderfully efficacious.

The carbonate of lime is the more valuable of the two lime preparations, and is designed more especially for patients who are inclined to be fair and plump with light eyes and hair. The phosphate of lime being more especially indicated in patients who are dark as to their complexion, hair and eyes, and tense in their fiber, rather inclined to be thin.

Carbo-veg., or vegetable charcoal, in homeopathic trituration is a magnificent remedy for patients suffering from swollen, spongy gums, which bleed at the slightest touch.

The appearance of the mouth in this class of etiological factors shows generally very slight inflammation, although the gums are sometimes swollen and bleed very readily, the entire mouth being bathed with a mild acid except after some minutes of mastication whereby the alkaline saliva has overcome the acid, and the teeth are affected by decay, more or less extensive, which is characterized by a very light brown or chalky white color

and by rapid progress, the patient generally being anæmic. The charcoal trituration not only relieves the mouth of its conditions but brings a healthy color to cheeks and lips, proving itself a wonderful tonic to the blood.

The bichromate of potash or kali bich., is a specific for ropy, gluey, stringy, acid saliva, which pulls out in strings on one's fingers and can only be expectorated with an effort.

I prefer as a rule to use the highest potencies I can secure, because their action is much more speedy than the lower potencies and their administration is much more convenient.

A few granules of the specified remedy poured from a vial into the hand of the patient and then taken on the tongue night and morning is sufficient if the potency or trituration is as high as the two-hundredth or higher, and more frequently if the triturations are in the decimals, like 6 x or 12 x.

In conclusion I will recapitulate my statements:

The cause of dental decay is a dyscrasia or morbid state in the system

It can be recognized in its early stages or incipency by the perverted secretions in the mouth.

At this stage the dyscrasia is capable of successful treatment and cure by medicines internally administered.

The remedies necessary to cure the dyscrasia and thus prevent dental decay are but four in number, and must be in the form of homeopathic triturations.

They are kreosote, kreosotum, for corrosive acid excretions.

Lime carbonate or phosphate—*calcareo carb.* or *calcareo phos.*, for the light brown or white decay of childhood, puberty and pregnancy.

The bichromate of potash—*kali bich.*, for ropy, gluey, viscid and acid saliva.

And vegetable charcoal—*carbo. veg.*, for white decay, mild acidity of saliva and swollen, spongy, easily bleeding gums, the patient presenting anæmic appearance.

This is my message to you today. It is not a theory. It is a simple statement of facts, the truth of which can be easily demonstrated by every practitioner who will apply intelligently the above simple remedies. My own experience convinces me that at least fifty per cent of dental decay can be prevented by the internal administration of these medicines.



New Jersey State Dental Society.

Twenty-Ninth Annual Meeting.

On Friday morning the president called the meeting to order and Dr. F. Edsall Riley presented from the Committee on President's Address the following report:

"The committee appointed to report on the President's address has undertaken the duty with pleasure. It is pervaded throughout with a spirit of love, and expresses a desire for the scientific and social advancement of the members of the N. J. S. D. S. It urges upon the society, as a whole, the duty which it owes to the community at large. Among some of his suggestions we note the following:

That the change in the time of the meetings in doing away with afternoon sessions is a most advisable one, and suggest that this be made a rule for any future meetings, from the fact of the very successful working of the plan during this session of the Society.

The President's hope in reference to committees has not been in vain, as committees are reporting promptly. Your committee feel that the advantage to exhibitors is as great if not greater than that to the society. In fact, we feel that they are fully compensated for the expense and time expended by them and it is the commercial part of our meetings in which opportunity is presented to them, and the fault is theirs if not improved. The space allotted them is an advantage to both the society and the exhibitor.

The question as to regulating the "Dental Shops" or the employment of young graduates in the conducting of such places, is a difficult problem, and your committee do not feel that they have, at this time, any suggestion to offer as to ways and means for the curtailing and stopping of such places, except to urge upon each right minded and thinking dentist to use all the means within his or her power to teach those who come under their care the difference between the true and false.

The President has emphasized the duty which we owe as a society to the public. To carry out the society's duty every member as a part of this society must do his duty in this regard to the best of his ability.

We heartily indorse the suggestion that an editor or editors be appointed to select and arrange such matter as is brought before this society, which in their opinion will educate the public in the care and preservation of their dental organs, the same to be published without in any case the name of the author appearing. The matter to be vouched for solely by the society. We make this recommendation that the matter may be thoroughly discussed.

As to the question of a splitting up of the practice of dental surgery into specialties in the near future, your committee is silent and allows the mantle of prophecy to fall upon our honored President's shoulders.

Your committee will not speak further of the many virtues of our honored member, the late Dr. Hayhurst.

The President has called your attention to the fact that the hornets are always awake. We hardly think that was necessary, for who is there that does not know that hornets are awake and ready for business at all times?

Respectfully submitted by your committee:

GEORGE E. ADAMS,
W. G. CHASE,
F. EDSALL RILEY.

On motion, report was accepted and placed on file.

W. E. Truex, D.D.S., Freehold, N. J., then read a paper entitled "Habitual Mal-occlusion—Some of the Results."

The president stated that it had been suggested that all of the papers be read, and then discussion be had upon them all. This course was followed, and M. L. Rhein, M.D., D.D.S., New York, read a paper, entitled "Antiseptic Environment."

Nelson M. Chitterling, D.D.S., Bloomfield, N. J., then read a paper, entitled "Experiences with Split and Perforated Roots." George Howe Winkler, M.D., D.D.S., of New York, then read a paper, entitled "Cause and Prevention of Dental Decay."

The president then called on Dr. Horn, of Yokohama, China, for greetings from the Far East.

It is extremely gratifying to me that the President has given me the privilege of saying a few words to you. It is a very great pleasure for me to be with you. You perhaps cannot appreciate how great that pleasure is; one must be away from home and among unfamiliar faces for many years to understand how great is the pleasure of being with one's friends again.

Dr. Horn.

In return for your kindness I have an invitation to extend to this society. Gentlemen, I most cordially invite you to hold your next annual meeting in China. (Laughter and applause.) If you will come, I can promise you a most hearty welcome, and if you would only change your meeting day to the Fourth of July, then, with a few kindred spirits there, we would gather round a friendly bowl, composed of ingredients quite within my knowledge, and there, in that far distant land, together drink to the grandeur and glory of the Star Spangled Banner. (Loud applause.)

The president then called upon Dr. Sanger to discuss the papers, but Dr. Sanger stated that he could not see anything to criticise in any of the essays, and therefore, owing to the lateness of the hour, would not go into a discussion of them.

Stated that he could hardly agree with one of
Dr. Walker the essayists as to the character of the dental operating room. That while he thoroughly believed in strict cleanliness, still he thought the hospital-like character of the room suggested by the essayist was not necessary, but thought it should be made pleasant and attractive to the patient.

Like Dr. Sanger, I do not see any opportunity
Dr. Chas. H. Meeker. for criticism, but I would like to ask Dr. Winkler one question: I do not understand how one of the remedies he mentions, charcoal—carbon—which is an insoluble compound, can be taken up by the system and do any good, and I should like to have him explain that to me.

That is a hard question to answer, and I do not
Dr. Winkler. know that I can explain it. Charcoal, as we all know, in its crude state is insoluble, and when taken in pulverized form it acts only as a mild irritant on the alimentary canal. It is not absorbed or taken up in the stomach, but charcoal, or any other agent that is used in homeopathy is reduced, not only to solubility, but even beyond that to a gaseous state like a perfume.

The idea as well as I can express it to you, is that charcoal or other crude material is composed of infinitesimal globules or granules, and that within these globules there is certain medicinal virtue or curative essence which is only liberated when the trituration of the charcoal or crude material has been carried to a sufficiently great extent. The allopathic physician in prescribing charcoal would not give a lump of it, because he would realize that it would be hurtful and of no benefit; he grinds it until it gets into an impalpable condition, and then considers it fine enough to do the work. The homeopathist, however, goes further and triturates it for hours afterwards with sugar of milk until the substance has been reduced to such an infinitesimal subdivision as to be disseminated through

the mass of sugar like a perfume. It then possesses wonderful curative powers.

The same principle is involved in the experiments of Professors Koch and Buchner Bros., of Germany, in their long-continued trituration, in the first instance of the *bacilli tuberculosis*, and in the second instance of the yeast germ. In 1897 there appeared in one of the medical journals of Germany a statement that by the long-continued trituration of the yeast germ the Buchners destroyed the germ, but had produced an alcoholic ferment. Shortly after that had been published Prof. Koch came out with his bacilli trituration; the trituration of bacilli for several hours, and procuring from that triturate a liquid which, injected into guinea pigs, rendered them immune against consumption. These scientists had quite a fight over the so-called discovery, and an attempt was made as early as '93 by Dr. Edward Buchner to patent his trituration process. There was quite a discussion in the medical journals over it. If they had read what Hahnemann, in his "Organon," published in 1833, they would have seen where he had called special attention to the great value of long-continued trituration of crude materials in order to get remedial or curative agents from them, and he named from seventeen to thirty different materials, the long-continued trituration of which was absolutely essential to produce curative remedies. Among them were such things as sulphur sand, charcoal, some of the metals, bacteria vaccine virus, etc.

One great trouble in the use of these medicines for the prevention of decay is that people do not come to a dentist for relief as they should do. They wait too long, and sometimes until they are actually suffering from exposed pulps. So it is not possible always to prevent decay in the mouth, but it is possible to stop the ravages of decay very rapidly and improve the condition of the mouth wonderfully from the moment patients present themselves.

I have one patient in New York over whom I have been able to exercise absolute control. He was a delicate child, and I told his mother if she would give me control of him I would undertake to keep his mouth in perfect order until he was of age, at my own expense. She did so, and I gave him creosotum because he had an acid in his mouth which was quite pronounced. He also had a yellow slime upon his teeth like a fungus, which required the aid of iodine with pumice stone to remove. I put him on creosotum, and immediately brought out over his neck and chest a lot of blotches, as large as the first joint of one's finger, cherry red. The family were alarmed and stopped the medicine, but I told them to continue it, because I wanted that out of him, whatever it was. I fed that little fellow, so to speak, every three months on small quantities of creosotum and lime-calcareo carb., and he got to be a strong and healthy boy and now

is eighteen years old, as strong and sturdy as can be, and with a set of teeth beautifully preserved, with but two small fillings in the sulci of molars. At the age of fifteen or sixteen his brothers and sisters had their teeth full of fillings.

A baby was brought to me, eighteen months old, with a slime on his teeth and a light brown decay eating into the four upper incisors. I put him on creosotum, and in less than two months the appearance of the mouth was entirely changed—there was no slime on the teeth. Small lines of decay were there, but its progress was arrested, and that little fellow is now more than three years old, and his teeth are not being destroyed.

On motion of Dr. Stockton, the discussion was closed.

On motion a committee consisting of Drs. Meeker, Stockton and Sanger were appointed to represent the New Jersey State Dental Society at the Paris Exposition in 1900.

On motion the communication from the Detroit Dental Society, concerning the appointment of dentists in the army and navy, was taken from the table.

On motion of Dr. Meeker it was

“Resolved, That it be the sense of this society that we concur in the fact that this government should appoint dentists in the army and navy, and that a committee of this society be appointed to co-operate with other dental societies in this matter.”

The Committee on Prosthetic Dentistry, through Dr. E. M. Beesley, chairman, presented the following report:

“The Committee on Prosthetic Dentistry most respectfully report that the greatest advance in this art is in the use of electricity for the fusing of high and low grade porcelain. It is more than an established fact from what was seen at the clinics yesterday in this room, that the unsightly gold fillings in the incisor teeth, gold crowns, and weak zinc phosphate fillings will be obliterated, and the natural colors will predominate and a higher art will advance as the operators become more proficient in this work. Nothing new in vulcanite has come to our knowledge. A new tooth crown was exhibited which seems to have very good points, and will be on the market soon.

A. M. BEESLEY, Chairman.”

On motion the above report was accepted.

The president then called for the report of the State Board of Examination and Registration in Dentistry.

I think calling for a report from the State Commission should be omitted from the minutes. *We are an independent body*; the State Commission is not a body of this society; we are appointed by the governor and make an annual report to the governor as required by law, and we cannot, as a State Commission, make a report to the State Society.

Dr. Brown.

In the absence of the chairman, Dr. Waas, Dr. W. H. Mitchell presented the following report from the Committee on *Materia Medica*:

Report of Committee on *Materia Medica*.

To say that the year just past has been behind previous years with its quota of new remedies would be to make a statement that would in itself be untrue.

The progress of dental *materia medica* is recorded in the proceedings of the various societies, in our dental periodicals, and but little remains for your committee except to mention the new drugs and the properties ascribed to each.

While we may not be able to report any startling new discoveries, still we can report a few new remedies that we think the profession will find of value, and the better understanding of some of the older remedies make the progress of the year equal with the preceding years and marks also a step in advance of which we need not be ashamed.

The drug trade is awakening to the needs of the dentist and the requirements of dentistry as a profession in a way that argues well for the future.

We think that it is not too much to say that relations between the family physician and the family dentist have grown more cordial during the year, and that the co-operation has proved to the best interest of our patients through intelligent general treatment for systemic disorders arising from distinct dental troubles.

The rivalry between the various proprietary antiseptic solutions has not abated, and new combinations have been placed in the market by various drug houses.

The chemist, however, in his investigations in the laboratory is constantly producing new forms of our old friends that have new properties.

The substitutes in the market for iodoform are numerous. But in many cases as the offensive odor decreases the efficiency of the drug likewise is less. Among these may be mentioned iodo-casein, iodo-iodoform, iodiol, iotrol, iodo-eugmol.

The more recent form, di-iodoform, contains 95.5 per cent iodine, and hence is of more value than iodoform. Care must be taken to keep it in a dark place as it decomposes in light.

Zeroform.

This is tri-bromo-phenol bismuth and many claims are made for its superior efficacy over iodoform.

Iodoformagen.

(Albuminate of Iodoform). This new drug is advocated by its introducer, Prof. Ernst Kromayer, of Halle, Germany, as an inodorless form of iodoform.

The iodoform is held in a quiescent state and slowly yields in solvents and in the secretions of wounds and the action is thus extended over a longer period of time.

Formaldehyde.

The use of this drug in dentistry has a history of only a few years, though the drug has been known since 1868.

In aqueous solutions it is too well known to be more than mentioned here. The use of the drug in dentistry is extending daily.

There seems to be a peculiar affinity in formaldehyde for other drugs which make it valuable in combinations. This affinity for other drugs results often in new forms that have only recently been placed in our pharmacopœia.

Eugeniform.

This is the sodium salt of eugeno-carbonol obtained by the action of formaldehyde on eugenol.

It occurs in broad crystalline plates which melt at 150° Centigrade, and are readily soluble in water, less so in alcohol and insoluble in ether. Eugeno-carbonol is decomposed in the body yielding the formaldehyde; hence (it is asserted in the "Druggists' Circular"), it is capable of exerting antiseptic and germicidal powers.

It is suggested that eugeniform might be a valuable root canal cleanser, combining as it does the valuable properties of two of our most used drugs.

Kreasoform.

This is another product of formaldehydic action on creosote.

A patent has been taken out in France and from this formula we find that it is made by mixing 1,000 grammes of creosote with 800 grammes of the 40 per cent solution of formaldehyde and 1,500 grammes of hydrochloric acid.

The mixture rapidly becomes hot and soon a greenish substance separates. This is washed in water and on cooling partly solidifies.

"Although this substance is claimed to be antiseptic and disinfectant, its practical utility (says the Druggists' Circular and Chemical Gazette), is not very apparent because it is insoluble in water and practically insoluble in any other known solvent."

While Kreasoform is insoluble and of little use therefore in general surgery, the writer had a quantity put up from the above formula, and several dentists have been using it now for the past two months.

The property of being insoluble in water or in the fluids of the mouth is a property that is of advantage in dentistry. In the large saucer-shaped cavities its sticky nature holds it in place when other dressings fail. It seems to be of particular advantage in the teeth of small children.

Mixed with the oxide of zinc like ordinary
Kreasoform Cement. cement it makes an excellent material for capping pulps. For filling pulp canals it has the advantage of being easily removed should occasion demand, with warm, not hot, instruments. To clean spatulas warm slightly.

There is a strong odor of creosote in kreaso-
Iodo-Kreasoform form, even in the cement form. But if a small quan-
Cement. tity of powdered iodoform is mixed with the kreaso-
 form paste, strangely enough the odor of both iodo-
 form and creosote seems to neutralize each other. We think that further observations of kreasoform will bear out these statements, and those who place it in their cabinets will be pleased with results.

This drug and its solutions are attracting con-
Trikresol. siderable attention from some operators, who are using it to the exclusion of carbolic acid.

During the year many who have been using gas
Anesthetics. have adopted the new apparatus that allows the mixing of pure oxygen gas with the nitrous oxide. Claims are made that the anesthesia is more perfect and there is less liability to deleterious results. It certainly is more nearly a true vitalized air than the compounds that have been administered for years under this latter name.

In regard to ethel chloride, we would say that
Local Anesthetics its use seems to be increasing and would call atten-
and Obtundents. tion to a new form of capped tube. In the new tube the glass is blown so that there is a minute inner tube similar to the tube in seltzer syphons, that goes to the bottom of the larger tube and the last drop is volatilized and can be used.

This obtundent depends for its efficacy upon
Uapocain. cocaine, being a solution of the hydrochlorate in sulphuric earth. The absorption by the dental tubuli seems not only to be superior to the aqueous solution, but goes deeper into the dentine. The action is hastened if a small piece of unvulcanized rubber is placed on the pledget of cotton and pressure applied; this

also prevents the rapid evaporation that would cause pain. Five minutes of this application generally enables the operator to excavate the cavity to his satisfaction.

Potassocaine. Is another etherial solution, that depends on the anesthetic properties of cocaine. All that is true of vapocain is true of potassocaine.

Ethocaine. A 12½ per cent solution of beta-eucain hydrochlorate in ether, used as an obtundent in sensitive dentine. Advantages claimed over all cocaine solutions are, first, 80 per cent less tonic; second, permanent solution; third, does not irritate when applied to the tooth.

Tropocain. In dentistry the following is recommended:

℞ Tropacocain Merck02 gram
Sodium chloride3 gram
Aqua Dist.05 gram
Dose for injection, 10 drops.	
℞ Topacocain Merck.	1.00 gram
Sodium chloride06 gram
Aqua Dist.	10.00

To paint surfaces.

Iodovasagen. This new drug is tinc. iodine in combination with vaseline.

It is not as eschantu when painted on surface as the official tincture, hence in some cases could be substituted iodovasagen and aconite could be used when iodine and aconite might be too severe. It is also highly recommended as a substitute internally for iodide of potassium in secondary syphilis

Chloride of Silver. In solution in manganese, chloride is recommended instead of nitrate of silver.

Cannoform. This is another result of the introduction of formaldehyde into the drug market, being a condensation product of tannin and formaldehyde. It is non-irritating to sores and wounds and externally has proved to be superior to tannin alone, when used in comparison.

We think that for ulcers of the mouth it may prove with glycerin of more efficacy than the glycerole of tannin.

Pyrozone Tablets. This is a new form of an old friend, of which no comment is necessary here.

Ferropyrine. This is a compound of antipyrin and ferric chloride. This new drug comes in the form of small ruby-red leaflets; is considered a valuable styptic not caustic in its action and has antiseptic properties.

Antikamnia.

In powdered form will relieve pain in exposed pulps and is useful to relieve pain after extraction by placing in the socket.

Saliform.

This is a new drug which, it is claimed, will eliminate uric acid from the system. If this is so and the uric acid theory holds good in pyorrhea cases we have in this drug a useful ally.

Trusting that armed with these newer and proved forms of old and reliable drugs as well as the newer addition to pharmacy, the profession will be enabled to achieve better results in the future than in the past, this necessarily incomplete report is submitted.

The committee are indebted to Mr. W. J. Evans and Dr. F. E. Stewart of New York for much data and information, the results of which you now have.

Respectfully submitted,

W. H. MITCHELL, D.D.S., Bayonne, N. J.

Report of Committee on Dental Literature.

The past year has been replete with contributions to our literature; while all has not been good wheat, yet, as you all know who have kept up with the subject matter, there has been a good quantity that will bear studying and storing away as useful and helpful. It is to be expected where there is so much written that some will be but chaff. But we think the profession at large can feel that we are advancing in the right direction, and that much original research is being made. It is not the intention of this report to weary you with a list of the subjects and names of authors, or journals wherein all the papers were published.

The paper read by Dr. E. H. Stewart before the Odontological Society of New York, on New Methods of Treating Pyorrhea, is a valuable addition to dental literature; the methods and ideas contained therein are worth examining and putting into practice. It is a well-known fact that all surgical operations, to be successful, must be thorough. As the treatment of pyorrhea is mainly a surgical one, it is essential to success that the operation be done thoroughly. Dr. Stewart's idea of roughening the tooth roots is worthy of consideration.

The journals during the past year are largely occupied with literature relating to methods of filling teeth with gold, tin and gold, and gold and amalgam, but with it all, nothing in the way of true advance in that line has been made, so that dental literature has not been enriched except by the airing of different hobbies,

Porcelain dental art is now occupying the minds, and also hands, of many, and we may be at last on the eve of reaching that goal long sought—the ideal filling—and truly this troublesome porcelain is very alluring in its charms. We have had several excellent papers upon the subject during the year, and from the titles of papers given in this year's programmes we will have more literature upon the subject.

The contributions of Dr. J. Leon Williams, read before the New York Odontological Society, should rank high in dental literature. The one entitled, "Which Shall It Be, the Empirical or the Scientific?" is one that should awaken the dentists of this country to greater and more persistent original research and progress. His plea is for the cultivation of a true scientific spirit. We, as dentists, cannot be true scientists if we sit idly by and accept as true everything told us as facts until we have tested and proved them as such to our own satisfaction, by working, analyzing, thinking and reading. This effort on the part of Dr. Williams will no doubt bear fruit.

The editorial in March *ITEMS OF INTEREST* may well be classed as an important contribution to dental literature. It is a pertinent and timely warning against the tendency to insert gold crowns in mouths in such a position as to make a display, that is anything but artistic or pleasing.

Another important contribution is that of Dr. Kirk read before the 2d District Society of Brooklyn on "Unifaction of State Dental Legislation," a consummation devoutly to be wished.

While there has been no paper dealing exclusively with the subject, yet in several instances the idea or theory has been expressed that the functions of the pulp cease when in adult life the tooth is fully formed; in other words, there is no need nor use for the pulp in a fully-formed adult tooth. The theory is based upon the fact that as life advances and attrition takes place, the pulp becomes smaller and smaller until it is entirely obliterated. It is an undisputed fact that the function of the pulp is to nourish, reconstruct and protect the tooth. The subject is one open to investigation and proof, and should it be fully demonstrated that the pulp is superfluous after a certain period, it will be in many ways a great help in the treatment of the human teeth. The subject also brings forward the question of the relation of the pericementum and pulp of a tooth toward each other, their capacity of individual effort, and to what extent it is carried.

An old question was reopened some time during the past year by Dr. J. Y. Tuthill, of Brooklyn, in a paper read before the Kings County Medical Society, entitled "Mercurial Neurosis Resulting from Amalgam Fillings." This question seems destined, Phoenix-like, to continually

arise from the ashes to which it has been consigned. The surprising part of this appearance is that it has been resurrected by a physician of the dominant school; we, as dentists, are accustomed to it coming from those of the homeopathic faith, from the fact of their belief in the toxic power of mineral poisons. There is an old saying, though a homely one, that "the proof of the pudding is in the chewing of the string," so this physician goes on to give his individual experience in order to prove his contention, and also cites almost miraculous cures of diseases presenting symptoms of uncommon character, by the simple removal of amalgam fillings. A close perusal of the evidence of the writer will show he is prejudiced, thus making him incompetent as an investigator.

We also call your attention to the following text books which have been published during the past year. The work by Dr. I. Norman Broomell is a masterpiece in its way. The author deserves much credit for the manner in which he has presented his subject, "Anatomy and Histology of the Teeth." It marks an advance in dental literature. We have two works on dental anatomy. One is a fifth edition of Dr. Chas. F. Tomes; the other, "A Manual for Students," by Dr. Alton H. Thompson. While this book is ostensibly for students, practitioners will find it useful, as it is furnished with material essential to every well-educated dentist. A third edition, by Dr. S. H. Guilford, on Orthodontia, has also appeared. Though small, this book is most comprehensive. "Oral Pathology and Practice," by Dr. W. C. Barrett, is a valuable book upon a subject on which the author is a recognized authority and teacher, which fact has enabled him to condense and present his subject in a manner easy of access and understanding.

Dr. E. S. Talbot has also given to the dental world the 34th edition of his book on "Degeneracy: Its Causes, Signs and Results." Dr. F. J. S. Gorgas has also sent forth to the dental world a sixth edition of "Harris' Dictionary of Dental Science," greatly enlarged with the results of progress during the past seven years, thus making it an up-to-date reference book.

There are some other books and papers that have not been touched upon for fear of consuming too much of your valuable time. Respectfully submitted,

W. G. CHASE, Chairman.

Clinics.

Dr. N. S. Jenkins, of Dresden, Germany, gave an interesting clinic on porcelain enamel work, showing the results of seven years of study and experiment. Scientific experiments have gone hand in hand, each supplementing and enlightening the other. He describes his clinic as

**Dr. N. S. Jenkins,
Dresden, Germany.**

follows: "Doubtless we shall all agree as to what constitutes a perfect filling. It must fill the cavity so exactly as to exclude moisture. It must be of a substance which will not disintegrate nor change its original form, neither through chemical action nor mechanical force. It must have a surface so smooth that it can easily be kept clean. It must be a poor conductor of caloric. It must restore the color and shape of the teeth. It must be applicable to the most desperate cases and must be susceptible of being used, without too great a strain, upon timid children and delicate invalids, as well as upon ordinary patients, and its working must not make too great drafts upon the strength and nerves of the operator. Last of all, it must be possible for any good dentist to use it with the certainty of obtaining infallible results. All these qualities are possessed by the material which I have called porcelain enamel.

At the outset I was convinced of the necessity of obtaining a substance which could be melted in a gold foil matrix. It is quite true that skillful men obtained splendid results, in favorable positions, with properly annealed platinum; but my object was to find a process and a material which could be used successfully by any competent dentist, in cavities in any part of the mouth, not as an unusual operation, but as an ordinary and regular proceeding in daily practice. With gold foil alone would this be practicable? Any capable man can certainly learn how to approach and how to shape a cavity in any position, so as to get a perfect impression in gold foil, but it will be only a most exceptionably gifted and patient man who can obtain such results everywhere with platinum foil, owing to the intractability of this otherwise most useful metal.

A perfect impression is the indispensable foundation of a perfect inlay. Gold foil No. 30 seems best adapted to the great majority of cavities. It is so thin that wrinkles can be easily obliterated, and yet stiff enough to admit of being worked out, in nearly all cases, without danger of bending or losing its shape. In very large and complicated cavities No. 40 may, however, sometimes be used with advantage. Given the gold foil impression it was necessary to find a simple and reliable method of keeping it exact during fusing. A paste of powdered asbestos and water was found to be quite strong enough to hold the impression in its place in the melting pan.

In drying the asbestos, however, which may be done simultaneously with the first fusing, the moisture should be gently evaporated, and not violently boiled out by suddenly applied heat.

My experiments began when the electric furnace was not in its present improved condition, nor in such general use, and I found it necessary and, indeed, in many ways more convenient to use the heat of gas for

fusing. A simple heater, lined with asbestos, open at one side and with a round opening at the bottom and a platinum cup and cover of a definite size, was found to be well adapted to the purpose. Through an opening in the cover of the platinum cup the process of fusing could be observed, a matter of consequence, especially in contouring. The best bellows for the blowpipe I found to be the so-called standing bellows, for, by its means the necessary steadiness of the draft could be obtained.

All these details, while important, were easily and naturally evolved, but the composition of the material itself was a matter of far greater difficulty.

At first I had great hopes of obtaining my aim with glass, after the manner suggested by Herbst, Richter and others, in spite of the evidence that this seductive and treacherous substance would disintegrate in a warm, moist environment, such as the mouth affords, and it was only by repeated failures that I was led to seek and find the happy combination of ingredients which unites the essential qualities of both porcelain and enamel. In this long search I had the frequent aid of some of the first chemists and practical experts in ceramic art, and my discovery, such as it is, was founded upon the labors of many far more able investigators.

Porcelain enamel has sufficient strength to withstand the force of mastication, and a surface which resists all chemical action except that of hydrofluoric acid. It resembles the substance of English porcelain teeth in many respects, but it fuses at a temperature of between 800° and 900° C., the melting point of gold being, according to the most recent authorities, 1075° C. This difference is quite sufficient to prevent melting the gold matrix, except through great carelessness. The variation of the melting point is also sufficient to prevent the gold foil from adhesion to the porcelain enamel, it being easy enough, with a little practice, to strip off the gold in one piece, or to scratch away fragments which may inadvertently remain attached to the inlay.

By the perfect removal of this perfectly exact thickness of the matrix from the inlay, the latter naturally fits the cavity exactly, and should not rock under pressure nor show a line visible to the naked eye between the inlay and the edges of the cavity.

With such an absolute fit only a slight film of cement is necessary for retaining the filling, but it is important that the inlay should be grooved with a small diamond disk before being set, and also that the cavity should receive some slight undercuts. Under such conditions the color or opacity of the phosphate cement is a matter of trifling importance. A little cement will cling for a time to the joint, and, until it dissolves, will be a slight barrier to complete harmony of color; but it

is so slight, in most cases, as to be noticeable only under dryness, and with a magnifying glass. After a time the color of all perfect inlays seems to improve, owing, perhaps, chiefly to the disappearance of the slight overflow of cement, which it is usually unwise to attempt to completely remove by mechanical means.

**Dr. Joseph Head,
Philadelphia, Pa.**

Dr. Joseph Head gave a clinic illustrating his method of restoring a corner of a central incisor with high fusing porcelain baked in a platinum matrix, and especially dwelt on the advantage to be derived from a second burnish.

**Dr. W. A. Capon,
Philadelphia, Pa.**

Dr. W. A. Capon, of Philadelphia, demonstrated the making of various inlays and sections by means of platinum matrix and high fusing body baked in the midget gas furnace and displayed specimens of various porcelain crowns, including the porcelain jacket, one of which he made and described as follows:

"This crown is made by fitting a platinum band (gauge No. 30) to the root or prepared tooth, the same as with gold cap work, excepting that the joint must be overlapping instead of butting edges. The lingual and labial outlines of the adjacent teeth are marked on the tube as a guide to grind those portions away to gain shape instead of cutting with scissors. The lingual side is shaped with wheel on lathe, and a piece of the same gauge platinum soldered to fit that portion by very small amount of pure gold. After trimming and fitting to root, the labial surface is ground thin enough to burnish and fit over the tooth, after which a thin veneer is fitted and held in position by the porcelain paste, carefully dried and baked the same as other crowns already mentioned. The crown is now fitted to the root and requirements noted, such as proper size, shape and thickness, and just where body is wanted. If the surface of veneer requires grinding it should be done at this stage, so that it will be glossed again by the last heat, which should be strong and of uniform degree. After final baking the platinum portion is polished and the crown is ready for adjusting, using thin cement and very gentle tapping with a pine stick. The crown should fit easy, as there is danger of breaking the thin porcelain on the sides of the crown or even checking the veneer itself.

The joints are lapped and made as close as possible, so that great and frequent heating will not entirely destroy the solder; excess of solder will flow over the surface of the platinum, causing porosity and destroy the porcelain adhesion, which may not be noticed at the time of operation, but will be more forcibly noted later on. The lingual surface is

ground thin to give shape, so that there may be two flat surfaces to hold solder. When finished it gives the proper tooth contour."

Dr. Ottolengui gave a clinic on porcelain filling, using the Jenkins body. The cavity was in a bicuspid involving the anterior approximal corner. The clinician demonstrated how to take a perfect impression of the cavity, and also of the entire tooth with No. 30 gold-foil, so that when the gold matrix was removed it represented the tooth and cavity.

The furnace used was the Kingsley furnace, which is similar to the Jenkins furnace, but has a stationary blowpipe in which the supply of gas or air is regulated by a stop cock, so as to be easily under control at all times.

The question of electric current for use in the office is one that puzzles many practitioners. Batteries being more or less unsatisfactory, Dr. Mitchell exhibited the plant that he has been using now for two years in his office. This consists of a small dynamo that is driven by a small water wheel and is compact and efficient up to its limit. The output of the dynamo is ten volts from one to two amperes, and according to the pressure on the mains. It can be driven at a high speed with only 40 pounds. The little turbine is only three and one-half inches in diameter and is connected directly on the shaft of the armature.

Dr. Mitchell tried to show it as far as possible as it runs in his office. It lights a 2-candle power mouth lamp beautifully and steadily, runs any of the various electric mallets, root charges, etc., as well or better than any of the larger batteries, without the disadvantages, and has the advantage of not growing weaker as it is used, the lights always being of the same brilliancy day after day. In the office it can be placed at a distance from the operating room in the laboratory, kitchen or laundry, and no noise is heard in office. Dr. Mitchell has it located in the cellar, with a push-button signal to have it started or stopped, as he may desire to use it. Though if it is left running expense is of small account.

The jet of water that runs the dynamo is very small, only one-eighth of an inch in diameter, and the quantity consumed when running is less than that used by a fountain spittoon for the same time, the cost being very small.

Dr. Mitchell also showed an electric spectacle with a 2-candle power lamp. This device is a spoon shaped reflector with the lamp in center. Two lugs allow the patient to close the teeth, holding it firmly in place, yet holds the mouth sufficiently wide open to enable the operator to work. The power for the light being supplied by the dynamo, can run

continuously and is close to where the light is most needed, a very useful little device.

A new form of incandescent lamp of full size and fitting the ordinary fixtures of $10\frac{1}{2}$ -candle power, recently placed on the market, it has been found will take its current very nicely from the little dynamo, and Dr. Mitchell has two of these in service, one hanging from the ceiling near the chain and one on the office desk from a switch in the wall. This lamp adds much to the usefulness of the dynamo, as the light can be placed anywhere it is desired. Dr. Mitchell calls attention to the fact that one of these lamps with a red globe or behind a red glass is an excellent dark room lamp for those who dabble in amateur photography.

As the dynamo is short wound it can be used to advantage to renew storage cells and requires much less attention than the Bluestone cells, and the storage can be effected at a much more reasonable cost to the practitioner.

There are many other ways in which this little machine can be made of use in a dental office. It being only necessary to possess a small knowledge of wiring, and by introducing a switch here and there to have this current just where it is desired.

Dr. Mitchell also showed a device that enables the vulcanizing time clock to announce the time when the vulcanizer is through its work at the same time it shuts off the gas.

Dr. Tenison describes his clinic as follows:

Dr. W. D. Tenison,
New York.

"The clinic given by me today was to demonstrate, by models, the results of thirty years' experience and observation and to show the benefits in that line of practice, but I wish it understood that I do not believe in extracting the six-year molars in every case; in fact, theoretically it is wrong to extract any teeth, but in practice it is the best thing to do under certain conditions for the future comfort of your patients, the dentist being the judge of those conditions.

Unfortunately I was unable to show models of the conditions existing before the extractions which I could have done had I supposed I would some day be called upon to give a clinic to demonstrate that which I claim as the best practice under certain conditions.

It has been claimed that when the six-year molars have been extracted the twelve-year molars will tip forward, and thus produce a mal-articulation or occlusion of the remaining teeth. I never have seen a case of tipping where the six-year molars have been extracted at the proper time, which is in my judgment, at the time the twelve-year molars are beginning to show themselves coming through the gums, and if I find it necessary, in my judgment, to extract, the jaws being equal, I

always extract all the four six-year molars, thereby securing a perfect occlusion of the teeth in after years, and lastly, but by no means the least, an exemption in a great measure from decay of the remaining teeth. Otherwise, where one or two are extracted, in nine cases out of ten a bad occlusion or articulation is the result, showing a distorted condition and disfigurement of the face. Much more could be said on this subject, but as this is only a report of the clinic and its purpose, made by request of the Clinic Committee, I hope it will be sufficiently clear to be understood. I also presented several models showing cases of regulations and the results after ten, fifteen, twenty and twenty-five years."

Dr. H. T. Stewart demonstrated his method of
Dr. Howard C. Stewart, operating for pyorrhea alveolaris. This consists
Greenville, Miss. in partially removing the external layer of the
 cementum and decalifying the surface.

Eucaine is injected into the gum, which is severed from the tooth all around to the alveolar process. With suitable scrapers the cementum is partially removed. If the teeth are quite loose grooves are then cut below alveolar process with engine bur.

By this means he claims to get most extraordinary results and a positive and permanent cure. The healing process is slow, requiring three to five months for tooth to get as tight, as is finally expected, though a marked improvement is seen within a few weeks.

The medicine used for decalification is pure sulphuric acid applied on iridio plat brooch. He depends for his results largely on the inflammation created.

Dr. R. H. Nones,
Philadelphia, Pa.

The clinic of Robert H. Nones, D.D.S., of Philadelphia, comprised taking impressions of different mouths with the various impression materials, also a demonstration showing the method of making shell models of tin, for use with vulcanite and celluloid work.

Dr. C. C. Graft,
Newark, N. J.

Demonstrated improved method of casting zinc dies direct from impression, also an improved compound for taking impressions and soldering investments, also base plate for taking bites and mounting temporary sets of teeth.

On motion the society proceeded to the election of officers, etc., the result being as follows:

President, William E. Truex, Freehold, N. J.

Vice-President, F. Edsall Riley, Newark, N. J.

Secretary, Charles A. Meeker, Newark, N. J.

Treasurer, Henry A. Hull, New Brunswick, N. J.

Executive Committee.

Herbert S. Sutphen, Newark, N. J.
Oscar Adelberg, Elizabeth, N. J.
William L. Fish, Newark, N. J.
Frank L. Hindle, New Brunswick, N. J.

Membership Committee.

N. M. Chitterling, Bloomfield, N. J.
William H. Pruden, Paterson, N. J.
G. M. Holden, Hackettstown, N. J.
F. G. Gregory, Newark, N. J.
J. L. Crater, Orange, N. J.

On motion Dr. Charles A. Meeker was recommended to the Governor to succeed himself as a member of the State Board of Examination and Registration in Dentistry.

Dr. G. Carleton Brown presented the following resolution:

Resolved, That hereafter practioners of this state who have either been expelled by this society or who have made application for membership and been refused, shall not be admitted to the sessions of this society. (Adopted.)

On motion of Dr. Meeker a vote of thanks was extended to the exhibitors for their exhibits and all they have done towards furthering the good of the convention.

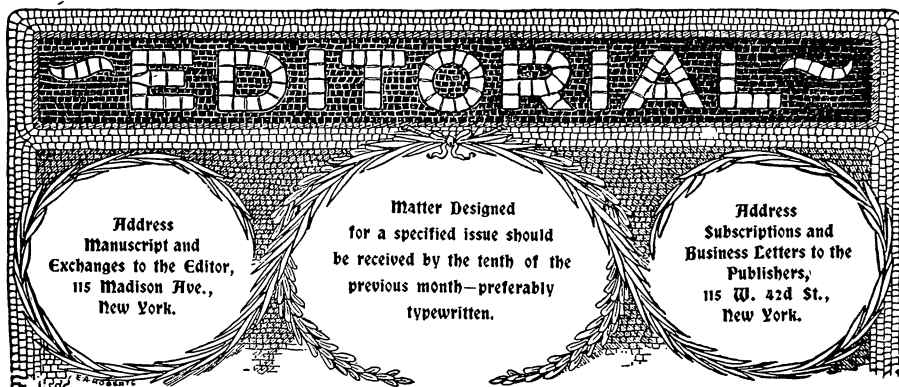
On motion it was resolved that the executive committee have power to make such changes in the programme relative to the time of the election of officers as they deem best.

The society then proceeded and completed the installation of officers for 1899-1900.

On motion of Dr. Iredell a vote of thanks was extended to Mr. Bradley for his kindness to this society during this meeting.

On motion resolved that the recommendations of the committee on the president's address be carried out, and that it be referred to the executive committee to appoint an editor or editors, as they decide best.

On motion of Dr. Osmun a rising vote of thanks was presented to the secretary for the preparation of the magnificent programme of the present meeting.



The Crown Company and the Protective Association.

We have received several letters asking whether it is true that prominent dentists in Boston have been attacked by the International Tooth Crown Company, and whether it would be wise to join the Dental Protective Association. The facts in relation to Boston are as follows: The Tooth Crown Company swore out warrants and had keepers placed in the offices of nine dentists, among whom were Prof. Fillebrown, of Harvard, who was the first president of the National Association, Dr. Dowsley, the president of the Massachusetts State Board of Dental Examiners, Prof. Hemingway, of the Boston Dental College, Dr. Shepard, Dr. Gilson, and others. These gentlemen were required by the court to give bail of \$5,000 each. Being members of the Protective Association, they notified Dr. Crouse, who appointed counsel for them in Boston and furnished bail to the full amount of \$45,000. In further explanation of the present status the following is quoted from the latest circular of Dr. Crouse:

"The Crown Co. have again resumed active operations. They are demanding a royalty on every piece of bridge work which has been done and also a license fee of \$25 for each year of alleged infringement of their patents. Thus far their operations have been confined to two or three states, but every one in the Union will be visited within the next few months and all dentists called upon to settle. We could cite many instances, but when we state that the Crown Co. have placed custodians in several dentists' offices in Boston, and that they have brought suits against

these men, the gravity of the situation is apparent. We do not doubt that several million dollars will be extorted from those who are not members of the Association. The Crown Co. have nearly five years more in which to collect royalty for past infringement, and furthermore own patents on other operations on which they expect to realize in the future, so the dentists are sure to be harassed for some time.

"The form which this struggle is now assuming will be much more troublesome and will involve even more time, energy and responsibility on our part than did the former litigation. If it were not for the fact that there is no one sufficiently well versed in the matter to carry on the work, we should certainly not take on the enormous burden again. It was necessary this week for the writer to put up his own private securities to obtain a bond for \$45,000, so that the custodians could be removed from the dentists' offices in Boston. We can ill afford to sacrifice the time and energy necessary, as our private practice is our means of support. Any thinking person can see that if we were in this work for what we could make out of it, it would be much more profitable for us to throw our influence on the side of those who are mulcting the dentists.

"We now desire to state the exact position of the Protective Association towards the International Tooth Crown Co. and towards every dentist in the United States, so that hereafter there can be no misunderstanding.

**Dr. Crouse
Offers Protection
to Members Only.**

"First, the Association will assume the defense of every suit brought by the Crown Co. against any member of the Association who has paid \$20, which is the membership fee and assessment. Second, the Association will defend any dentist who is accepted as a member before Dec. 1, 1899. Third, the Association will not defend, nor give any aid in defending, any suit brought against a dentist not a member, nor against a dentist who waits until he is sued before he joins, nor against any member of the Protective Association who does not pay his assessment.

"Knowing the defense we can make we do not believe the Crown Co. will press suits against members of the Association. As the matter now stands the members and ourselves are being put to much trouble because the Crown Co. do not know who do and who do not belong to the Association, and through misapprehension of this fact some members even have been sued. We shall therefore publish by states a list giving full names and addresses of all members not in arrears, and we firmly believe that thereafter the demands and suits of the Crown Co. will be made and brought against only those dentists whose names are not on this list, and whom the Crown Co. will then know to be neither aided nor protected by the Association.

"There is not the slightest doubt of the ability of the Association to protect every one of its members. We have never been defeated, but for the past eleven years have won every suit brought in every state and also in the Supreme Court of the United States. We speak advisedly when we state that every practitioner who unites with this organization will be taken care of and be protected against any claim for royalty.

"Now remember, Doctor, that the Crown Co. may be on you at any

time, and if you wait until you have been sued before joining the Association we can do nothing for you. We would therefore strongly urge that you sign the enclosed by-laws and return at once with your check for \$20.00 to cover the membership fee and assessment. This is all you are liable for.

"Hoping to hear favorably from you at once, I remain,

"Yours very truly,

"J. N. CROUSE.

"Chairman Dental Protective Association."

As to the question whether one should join the Protective Association or not there are two replies. First to those who have joined but who have not paid their assessment. In a sense they are not now members; at least not members in good standing, and, therefore, not entitled to claim protection. These men should remember that when they originally joined they signed an agreement to pay ten dollars on demand. These signatures practically make the papers "demand notes" and all honest men meet their obligations. Having agreed to pay, a man should promptly forward the amount whether he fears the Crown Co. or not, because not only is it a legitimate debt, but his money will aid in helping others who may be attacked.

To those who are not members, there is this to say. In the past they have benefited by the existence of the Protective Association since it is undoubtedly a fact that when the Protective Association was inaugurated the Crown Company was successfully carrying out its scheme of compelling the dentists to take out licenses to use the patented processes which they claimed to control. The Protective Association fought the Crown Company and while it gained victories for its members, non-members were equally benefited. Do these owe nothing at the present time to the Protective Association? Though their debt be not recorded, are they not morally bound? Is twenty dollars a large sum to pay for the immunity which has been enjoyed? Or, if the past has been forgotten, will it not be *cheaper* to pay twenty dollars to the Protective Association, than run the risk of giving a hundred dollars to a lawyer as a retaining fee? From a moral as well as a business standpoint Dr. Crouse's offer seems to be a good one.

**Dentists Should Join
the
Protective Association.**



Questions will be answered in this department, provided the answers would be of general interest. After publication our readers are cordially invited to make further reply, criticism or comment.

Our October number was on the presses, in fact, would have been printed but for a delay in receiving paper, when the sad news of the death of Dr. Bonwill was received. There was just time to record expressions of sorrow, and thus it was that a mistake was made in giving the date of his birth as 1838, which is as it was stated in the biographical sketch of him which we published in June, 1897, and as the error was never corrected by the doctor himself during his lifetime, we supposed it to be correct.

Dr. Bonwill's Last Days.

The true date of his birth was 1833, and it may be here noted that his death in connection with the date of his birth seems a sad coincidence. It is well known that his faith in the "equilateral triangle" as being the basic principle of the universe, was abiding. His last published work, which appeared in our September issue, contained a revision of his previous writings upon the triangle in relation to the human jaw. Now that he is dead we cannot but observe as singular that he was born in '33, lived to the age of 66, and died in '99. The sixty-six years of his life may

be likened to an equilateral triangle of twenty-two, and as twenty-two is a trifle more than a man's estate, we may truly reckon that he did for dentistry the work of three men.

In addition to the article on articulation, our September number contained another from his pen on clasps, which latter was incomplete, the words "to be continued" appearing at the end. Our readers will be glad to know that the continuation of the article will appear in our next issue. During his last illness, and after the operation from which he seemed to be recovering, he notified us by letter that he was amusing himself revising this manuscript, which within a few days has been forwarded to us. Thus, even upon his death bed, Dr. Bonwill was working to share with his *confreres* the result of his great mechanical genius. It has been said that no man is so important in this world that he will be missed long, but when will dentistry find another Bonwill? We shall not publish in our pages now the usual obituary notice, it being a gratification to remember that we did him honor while he was yet alive. Those who are interested will find a full and accurate account of his career on page 395 of the volume for 1897, where also was printed a good copy of a lifelike photograph.

<p>Priority in Relation to Porcelain Fillings.</p>	<p>In a paper read by Dr. Joseph Head, before the New Jersey State Dental Society, and published in our last issue, occurs the following statement: "In 1887 Dr. C. H. Land made mechanically perfect edges possible by devising the metal matrix."—"From the discovery of the metal matrix dates all effective porcelain filling."—"Dr. Land deserves the thanks of the profession for this discovery."</p>
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At the same meeting Dr. Capon read a paper, also published in our last issue, in which he, too, fixes the date of Land's publication of the use of metal matrices as 1887, and in order to substantiate the claim he quoted from the original paper.

The discussion as to priority having begun, it may be of interest to reproduce an article on the subject of porcelain fillings, from the pen of Dr. William Rollins of Boston. This paper was published in the *Boston Medical and Surgical Journal* for April, 1883, and it must be observed was but a repetition of a paper read in 1880. In view of present day discussions, it is quite an interesting old paper, for not only is "gold foil No. 30" mentioned as serving for a matrix, but a formula for an enamel which will melt on gold is given. In a second method it is mentioned that in large cavities pieces of already baked tooth body may be used to overcome shrinkage, a method which has been 'suggested' as recently as this year. The article follows:

**Enamel
Fillings
for Teeth.**

"When the article of which the following is an abstract was read before the Society for the Advancement of Oral Science, June, 1880, I supposed that the use of enamel filling was original, and the article was consequently sent to one of the journals. Since then several dentists have told me they had used pieces of porcelain for filling 'twenty years ago.' I am convinced there must have been some imperfections in the methods they used, as I am not aware of any one even now who regularly employs this way of filling teeth, and think it may be well to again attempt to make the method public, particularly as the experience of several years has convinced me that many conspicuous cavities can be more satisfactorily filled in this than in any other way. Early experiments were made with walrus ivory, and afterward with celluloid. The former succeeded, the latter failed. The next method tried was one which in some of its modifications is now used.

"Carefully cut the cavity with perpendicular walls. When perfectly dry cover with a thin layer of some petroleum fat. Roll up Godiva modeling composition into sticks about two inches long and one-quarter of an inch in diameter. Hold the end of one of these sticks over the gas flame, then press into the cavity as far as possible. The cold part of the stick acts as a piston and gives a good impression. Attach a copper wire to the stick, dip for a moment into ether, then into powdered black lead, and brush to remove the excess. Make an electrottype from it. The thickness of the copper deposit should vary according to the subsequent treatment of the mould.

"First method: Make the copper one-sixteenth of an inch thick. Clean the surface and drill a hole through the mould. Cover the face of the mould with a layer of No. 30 gold-foil. Then make an enamel as follows:

Oxide of lead	800 parts
Silica	400 "
Carb nate of potash	100 "
Cryolite	500 "

"These should be finely divided, intimately mixed, melted in a covered white crucible, poured into cold water, dried, ground fine, and marked Enamel Base. Many bases have been tried, but this is now used. To color the enamel base: for gray, blue, platinum; for yellow, silver, chloride of silver, oxide of uranium, silver and gold, oxide of cerium, oxide of cerium of gold, glass of antimony either alone or mixed with gold. For blue, cobalt or oxide of silver.

"Other colors have been tried, but these give good results with the enamel base mentioned. The amount of color must be found by experiment, each new sample differing in power.

Examples, gray-blue enamel:—

Enamel base, 100 grammes; platinum, 50 milligrammes.

Yellow enamel, No. 1.

Enamel base, 100 grammes; uranium oxide, 40 milligrammes.

Yellow enamel, No. 2.

Enamel base, 100 grammes; cerium oxide, 500 milligrammes; gold, a variable quantity; kaolin, 1 gramme.

“These materials should be finely divided, intimately mixed, and fritted on platinum in a muffle. Colored enamels may be made less transparent by increasing the cryolite, by cooling slowly, or by adding an opaque body. Cryolite can be increased to advantage with those pigments only which give the required colors in the metallic state.

“To mould the enamel: Put a piece on the prepared mould and lay them in a heated muffle. With a platinum instrument press the enamel into the cavity. Immediately remove from the muffle, placing upon cold metal; when cold push out the enamel by means of the hole in the back; put the enamel in aqua regia; wash and dry.

“Second method: Deposit copper in a thin layer and back it up as in an electrolyte. Clean the mould and drill a hole through the back. Pack tooth body of a suitable color into the mould. Dry and push out of the mould by means of the hole in the back. Biscuit, and when cool replace in mould, trim and enamel, then bake. For small cavities the shrinkage is not injurious. For larger cavities one of several ways may be used. First way: Grind a piece of body to a size smaller than the cavity. Place soft tooth body in the mould and press the piece of fused body into it. Dry, biscuit, etc., as before. Second way: Pack soft body into the mould, dry it and bake; then use this piece instead of grinding as just described. If a cavity is circular and quite small, the most rapid way is to grind a piece of fused body to fit the mould.

“By whatever method the enamel is prepared, success in filling depends upon the way by which the enamel is fastened into the tooth. I have found no durable cement, but a modification of the preparation called Hill's stopping seems to answer the purpose.

R	Pure gutta-percha	1 part
	White oxide of zinc	4 parts
	Oxide of titanium	}	a minute quantity
	Oxide of uranium 3		

Mix.

“To properly imbed the enamel in this preparation in filling it is necessary to use an instrument giving out a constant amount of heat, as otherwise one of two things will happen; either the enamel will be fractured by

the changes of temperature or it will not be properly imbedded, because heat enough has not been used to soften the composition. I have devised several instruments, and two of them having been found simple will be described at the end of this paper.

"Given such an instrument, begin the filling by driving the cavity with absolute alcohol, then soak it in creosote, dry the cavity again and varnish with a solution of copal in ether. Smear the surfaces of enamel and cavity with the oxide of zinc composition already given, place the enamel in position, and imbed it with either of the instruments to be described. After removing the superfluous material the operation is completed.

"Instruments: The first is a copper wire one-eighth of an inch in diameter and eight inches long. One end is expanded into the shape of the bowl of a teaspoon, the other is formed into a socket for holding instruments made of copper. Between these ends the wire is wrapped in asbestos and inclosed in a hard rubber handle, to one end of which is attached a small gasburner so placed that when lighted the flame shall impinge on the concave side of the spoon-shaped end of the copper wire. The gas-burner is connected with the gas supply by a small rubber tube six feet long.

"The other instrument is a pair of pincers. To the inside of one of the jaws is attached a soft rubber pad. The other jaw is perforated for holding an instrument like the first one, only on a smaller scale. The soft rubber pad is placed against the tooth, the warm instrument in the other jaw is then pressed against the enamel, and the jaws brought together by pressure on the handles."

**Are
Human Teeth
Degenerating?**

In an interesting letter Dr. Hayes Norman, of Adelaide, Australia, informs us that "Adelaide is a sink of dental quackery. There is no legislation and quacks have flocked here as to a happy hunting ground. Excessive competition has lowered the fees till no respectable man can do decent work and earn a living." To those who have questioned the benefits of dental legislation, the above report of conditions in a locality where legislation does not protect the community must prove instructive. As a contribution to the subject of the decadence of human teeth, we reprint an article, which was written by Dr. Norman for the local newspaper. We reproduce this not alone for the subject matter contained, but as a good example of the style of articles which if published in the daily press would serve to educate the public. It is of further interest to note that the editor of the Adelaide newspaper in the same issue discussed the subject in an editorial covering more than a column, showing a familiarity with the literature of dentistry which would have been creditable as coming from the pen of an old practitioner, and producing such an article as has seldom if ever appeared in a newspaper in

America. More of such writing for and in the press would do much to make dentistry more respected. Dr. Norman's article follows:

"I feel it to be my duty to publicly utter a warning note concerning the decadence of teeth, which is threatening to become at no very distant date a racial deterioration. I do not speak from an enthusiasm born of recent experience, but from a close and hobby-like application of nearly forty years in the conservative side of dentistry. I have no hesitation whatever in stating that if the decadence progresses during the next twenty-five or thirty years as it has during the past thirty years one-half of our girls will be unfit to become mothers. It is through the future mothers of our community that the Nemesis will fall. I do not stand alone in this foreboding. In October, 1892, Dr. J. Leon Williams, L.D.S. Eng., D.D.S., United States, in the *New Review*, uttered a similar caution, from which the following sentences are extracted. Only seven years have elapsed since, and yet I cannot help seeing that the degeneracy of our children's teeth has become alarmingly worse:—'That there has been a steady and rapid deterioration in the quality of human teeth among nearly all the great civilized nations of the earth during the past century—a deterioration specially marked during the past thirty or forty years—no one can deny. Are we, then, to consider this degeneracy of the teeth as a local indication of a general decline of racial vitality? I can see no possibility of avoiding an affirmative answer to such a question. . . . We are always prone to overlook the importance of any disease which does not immediately threaten to extinguish life; but it would not, I believe, be difficult to show that the sum of physical evils which may be directly traced to decay and loss of the teeth is far greater than any likely to be inflicted by the advent of any contagious or infectious disease. . . . I am probably considerably within the bounds of my statement when I say that the loss of the masticating teeth before the thirtieth year means a shortening of the life of the individual of from two to five years. To know the extent to which many of these teeth are lost even before the fifteenth year one has only to turn to the recently published reports of the examination of the teeth of children in the schools and orphan houses of London. If some effective measures are not adopted for combating the ravages of dental decay it looks very much as though another half century would find the poorer classes of English people practically edentulous before the twentieth year.'

"Now, I ask, what would this eminent and highly respected London dental surgeon have written if he frequently saw, as I do, children requiring their front permanent teeth filled with gold at eight years of age—one year only after they have obtained them—and other young persons at from fifteen to seventeen years who have lost all their teeth at the hands of artificial tooth-makers? With this aspect of the case I can but recognize that Dr. Williams's prophecy is being rapidly fulfilled. But here another aspect of the matter should be brought before the public. The General Medical Council of Great Britain has issued a circular, which I enclose, presumably to all registered dentists, and which shows that the Council in December of last year passed a resolution—'That any registered medical practitioner assisting an unregistered dentist in dental operations is guilty of infamous

conduct in a professional respect.' It seems to me that it is derogatory to the dignity of the medical profession to meet unqualified dentists. By unqualified I do not mean dentists who are simply 'registered' as being in practice before the passing of the act, but qualified by curriculum and diploma. There is of course in England no power for compelling medical gentlemen to administer anæsthetics for registered dentists, whether qualified by examination and diploma or not. They are within their legal right in refusing to administer anæsthetics for those who have no diploma, and administering for those who are registered as being in practice, but without diploma, if they do not object to meeting them. When the Dental Act passed the English Parliament in 1898 every chemist, barber, or other person who had assisted a dentist or practiced dentistry in any shape or form had the opportunity to register, and hundreds of quacks seized the opportunity, and now parade certain mystic letters as a title or diploma from a college, whereas there is no legal warrant for them, and they have no meaning whatever. Although the act could not pass and interfere with vested interests—they were obliged to legalize all, good, bad, and indifferent—it is open to the medical profession to say:—'We will not meet any but dentists who are qualified by curriculum and diploma.' By this means only can the public be protected in a measure from charlatans, who, under bogus titles, are ruthlessly extracting teeth from the mouths of young people for the profit of making artificial teeth. Any young person who in the early years of life is deprived of all teeth is doomed to much suffering and distress in after years, unless the grave covers an early death."

**Dentistry
in the
Philippines.**

Writing from Manila an American dentist recently established there says: "A Dental Board has been organized here in connection with the Board of Health, and I understand that a number of the dentists now practicing will be required to pass an examination. At the present time this is not a good location. There are a large number of dentists here and more are arriving by each boat. Several have given it up after a short trial and either gone farther or else have returned to the States. There are no accommodations here for a dentist. No gas, no electric light in daytime, no gasoline. One must do his soldering by the use of a native oil, or with a very poor quality of alcohol."



face; and we daily observe that the stress of the lower teeth against an upper rubber base leaves after years scarcely any trace. Let us be satisfied at present with the white rubber such as we have it, and use it for inlays in front teeth of a dark gray color, or for molar of whatever color.

**Method
of Making Vulcanite
Rubber Inlays.**

In filling a lateral cavity, we may proceed in the following manner: The cavity is cleaned and made cup-shaped, but no undercuts are made until shortly before the final introduction of the inlay. The cavity is then smeared with vaseline and wax which has been kneaded with the fingers is pressed into a Foster-Flagg instrument, and with a like instrument, heated, spread so as to closely follow the contours of the tooth. After the wax filling has been sprinkled with cold water, it is taken out with a glass-headed pin, the point of which has been roughened by a corundum wheel, or with a straight probe treated in the same way, provided of course the adjacent tooth has been separated as well as possible.

In a similar manner, any cavities upon the masticating surface of molars may be treated. A little chlorethyl may be sprinkled over the wax stopping to facilitate its removal, and thus stop the yielding of the wax when taken out with the needle. The wax impression, thus obtained, if a prosthetic piece is to be vulcanized, is placed under the flask cover so that the part of the form opposite the bottom of the cavity remains partly uncovered by the plaster, to make possible the melting of the wax with hot water, and the stopping with white rubber. If it be desired to have the inlay not in its entirety, but only as a thin cover, a little piece of the wax that covered the bottom of the cavity is cut away carefully, or the wax form is bedded into the plaster as deep only as the desired thickness of the cover.

A little piece of German silver or gold wire may be vulcanized into it so as to strengthen the adhesion with the cement anchoring. Since rubber allows of a pretty firm union with gold foil, the vulcanized inlays may eventually be provided with it.

The fixation of vulcanized inlays, as in all inlay fillings, is done with soft cement after the small undercuts have been made in the cavity. The polishing of the surface of the inlay is done best, after the hardening of the cement, with the usual instruments.





A Tribute to Dr. Bonwill.

With the deepest regret, I note the death of W. G. A. Bonwill. The falling of one of the pillars of dentistry but causes us to look about for the moment, wondering if the remaining columns are staunch enough to maintain the superimposed structure at the level to which it has already been lifted.

He realized that no question greater than Dental Surgery was addressing itself to the civilization of the 19th century.

He practiced in the days of small things. He has, through the hearts of the profession at home and abroad, been awarded the honor justly due the one who has held a commission in that "Crack Company," which was a constituent of the Noble Army of Veterans, from whose ranks have come our inventors, investigators, practitioners and teachers, and those who have been actively engaged in the advancement of professional attainment; those who have spent their lives in elevating the art of dentistry.

The old fields of research and application were limited to the extent that they were readily mastered, both by the theorist and practitioner, little realizing the responsibility resting upon them in undertaking the multitudinous branches to which they unthinkingly turned their untrained hands.

There have been no abrupt lines of demarkation in the evolution and advancement of dentistry.

The trend has been gradual, yet vigorous; a general uplifting.

Dr. Bonwill was one of those who went to make up the leaven of the mass.

Through magazines and societies he has been in close touch with progress; through untiring efforts and sincere devotion to his chosen profession, he has been an inspiration and a stimulus to those whose good fortune it was to be associated with him.

He has finished a life which should be a goal to the younger members of the profession.

"He builded better than he knew."

HARRY F. HAMILTON,
Newport, Vermont.

Willis B. Pomeroy.

Dr. Willis B. Pomeroy, of Washington, a former resident of Chardon, died suddenly at Smyrna, Delaware, where the deceased had gone for a respite from professional cares. It is especially to be deplored, in that it was accidental, resulting from an overdose of chloral taken to relieve insomnia, from which the deceased had long been a sufferer, as well as from heart trouble and other ailments contracted in military service. Coming without warning, it was a great shock not only to the family and relatives, but to a great company of friends to whom Dr. Pomeroy was endeared by his genial and unselfish nature, his rare qualities of heart and mind.

Dr. Pomeroy was born in Geauga County, Ohio, July 27, 1837, and was in his sixty-third year at the time of his death. He was the son of Noah Pomeroy, a pioneer, who spent seventy years of his long and worthy life in Geauga County, being for years a resident of Chardon, and at one time its Mayor, and later a prominent citizen of Claridon, Ohio. At the breaking out of the Civil War, Dr. Pomeroy volunteered his services in behalf of the Union. He was first lieutenant of Company G, Fifth Michigan Volunteer Infantry, and served with honor under Generals Pope and Burnside. He succeeded to the command of Company G, January 14, 1862, in front of Richmond, and led the company through the battle of Fair Oaks. At the second battle of Bull Run he was appointed Aide-de-Camp on the staff of General Kearney and acted as chief of the ambulance corps of Kearney's division. At the mustering out of the Fifth Michigan, he enlisted in the Twenty-sixth New York Cavalry, and served till the close of the war, receiving an honorable discharge.

Previous to the war, he entered a Cleveland dental college, and had just graduated when the great struggle opened. After the surrender of Lee, he located in Washington, where he was engaged in the practice of his profession at the time of his death. He was one of the best known dentists in Washington, ranking with the foremost anywhere. He was eminent as a surgeon dentist. The night before he died he had made an appointment with a surgeon as counsel for a very intricate surgical operation. His patients came from Baltimore and other cities. The deceased was a well known member of the G. A. R., and of the Old Guard, serving as the chief of staff to the commanding officer, and was also a prominent Mason.

The remains were interred in Arlington, where the burial service of the G. A. R. and Masons were read, and benediction was pronounced

by the clergyman. A squad of eight members of the Old Guard fired a salute, and taps was sounded by a bugler from Fort Myer.

The deceased left a wife and three children, Dr. N. Willis Pomeroy, Mrs. Jennie M. White and Mrs. May P. Gibbons. Also he is survived by a sister, Mrs. Jennie M. Phelps, of Cleveland, and two brothers, D. W. Pomeroy, of Troy, N. Y., and N. M. Pomeroy, of Warren County, Pa.

Lendon S. Straw.

Dr. Lendon S. Straw died at his home in Newburgh, New York, October 9, 1899. He had been in failing health for some time, but latterly, it was supposed that he had improved, a relapse, however, occurring recently.

Dr. Straw was a native of Hopkinton, New Hampshire. He began his professional life with his father in Bangor, Maine, in 1841. In 1849 he went to California, remaining five years, and then returned to Bangor. In 1857 he settled in Newburgh, going into partnership with Dr. William A. Royce for five years.

From the time of his debut in New York State, he made many warm friends in the dental profession, and was one of the earliest members of the New York State Dental Society, becoming its Vice-President in 1881, and serving as President in 1882, '83 and '84.

He was also a prominent member and several times President of the Second District Dental Society, and it is a sad and interesting fact that he died on the very day when the annual meeting had attracted the members, as usual, to his own home, Newburgh.

It was through his perseverance, with the aid of others in the State Society, that early legislation was obtained in regard to dental practice.

The Straw family was an old one in New Hampshire. Dr. Straw's paternal grandfather was a soldier of the Revolution. His father was a practicing physician, who, during the Rebellion, raised two companies of Union soldiers and went to the war as captain of one of them. He subsequently resigned the captaincy to discharge the duties of army surgeon. The closing years of his life were passed in Newburgh.

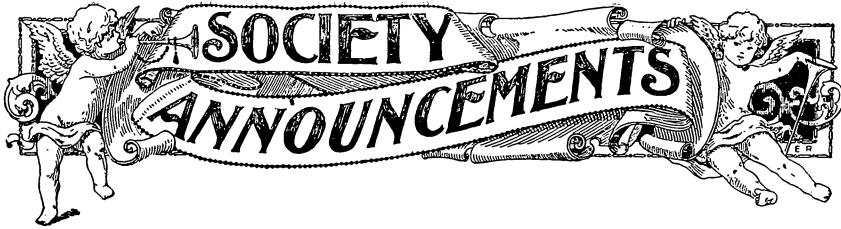
Dr. Straw was a lover of sports, of athletic exercise, a firm believer in the efficacy of fresh air treatment for many of the ills man is threatened with. He was among the first in Newburgh to adopt the wheel as a mode of locomotion, and he enjoyed his early morning spins as much as any young man in the community. He invariably took his wheel with him on

his vacation tours, and came back with stories of the beauties of nature witnessed while wheeling along the country highways. He was a man of great sociability; he loved to be with his fellow man, whether in the club-room, hotel corridor, lodge gatherings or church meetings—it was the same to him. He desired but the companionship of those bright minds he found in every walk of life, and he invariably left his impress of character wherever he went. With Dr. Straw wit and wisdom were companion accomplishments, and while he entertained he invariably gave something to be remembered in the future, when the lighter parts had been evaporated. He was a great lover of the Masonic fraternity in his younger days and three times did his brethren of Newburgh lodge send him to the seat of the Master in the East. Then the Grand Master of the State honored him by appointment as his deputy in the 10th (present 13th) Masonic district.

Dr. Straw was a thorough musician, an instructor as well as a practitioner. For a time he led the choir of St. George's Church, and those who remember say the music furnished under his direction was of the highest order. He was a member of the vestry of St. George's Church.

Dr. Straw leaves a widow, formerly Miss Phalen, and one daughter, Miss Linda P. Straw. He was a member of St. George's Church.





International Dental Congress.

As much of the preliminary work of the congress has already been done, we publish this circular for general information, requesting other journals to copy, if they have not already translated and published it.

Arrangements are being made to get transportation for some time early in July, between the 10th and 21st, so that those who may wish to attend both congresses, medical and dental, will be in time for the congresses or for sight seeing.

About twenty clinicians may be utilized in Paris and not more than fifteen essays.

CONGRES DENTAIRE INTERNATIONAL DE PARIS.

(8-14 August 1900.)

To the Dentists of the United States:

As you will see by extract of rules herewith, an International Dental Congress is to be held in Paris from August 8 to 14, 1900, under the patronage of the French government.

This congress, organized by national dental societies, will continue the custom so happily inaugurated by the International Congress at Paris in 1889 and in Chicago in 1893, and is one of the official congresses to be held during the exposition.

It is needless to call your attention to the importance of this great professional reunion, to which belong the principal dental societies of the entire world.

We are already assured of a great interest of this new congress by the important number of demonstrations and lectures which have been announced from all sides, by the variety of the subjects to be discussed in the different sections, by the value of the reports to be discussed in general assembly, reports dealing with subjects of present interest in our

profession, and finally by the standing of the professional men from all countries who will take part in the discussions.

The record of the proceedings which will be sent to each member will constitute a veritable compendium of the state of our special science at the close of the nineteenth century, and a volume in which every dentist in the world will wish to see his name.

Therefore, we have the honor to solicit for this congress your membership and co-operation.

Please accept the assurance of our fraternal sentiments.

Committee of Organization.

Extract from Rules.

Article 2. The cost of admission to the congress is fixed at fr. 25. Members will have right to all the advantages of official members.

Article 5. Members of the congress who wish to read a paper are asked to advise the secretary three months before the opening of the congress. They must join to their notice the title of their paper and the results of their work. The committee will translate these results into French.

Article 6. The congress will be divided into several sections: 1. Anatomy, physiology and histology. 2. Special pathology and bacteriology. 3. Operative dentistry and special therapy. 4. Anesthesia, general and local. 5. Prosthetic, dental orthopedics and facial restitutions. 6. Instruction and dental history. 7. Legislation, jurisprudence, odontology. 8. Hygiene, public dental service.

Article 7. The work of the congress will comprise: 1. Communications, of two kinds. (a) Those proposed in advance by the commission and intended to form the subject of reports. (b) Those chosen at liberty.

The communications will be in French, English, German, Russian, Italian, or Spanish. The conclusions must be in French. 2. Practical demonstrations (operations, prosthetics, and presentation of new instruments).

Article 13. To be a member it is necessary: 1. To have legal right to practice in place of residence. 2. To be honorably following the profession, that is to say without advertising or doing anything contrary to professional dignity. 3. To be endorsed by the National Bureau of the resident country, if one exists, or by the Committee of Organization.

Article 14. Persons not following dentistry can be admitted by special request to the Bureau of the Committee of Organization.

Address all applications, correspondence, etc., to Dr. E. Sauvez, 17 Rue St. Petersburg, Paris. Send subscriptions to M. Viau, Treasurer, 17 Bvd. Haussmann, Paris.

Commission d'Organisation.

Honorary President: M. Lecaudey (Em.), Honorary President of the Society of the Dental School and Dispensary of Paris and of the General Association of Dentists of France.

Président: M. Godon (Ch.), President and Manager of the Society of the Dental School and Dispensary of Paris.

Vice Présidents: MM. Damain (Ed.), Directeur de l'Ecole Odontotechnique; Ducournau, Président l'Association de l'Ecole Odontotechnique; Queudot (le Dr.), Président de la Société Odontologique de France; Ronnet, Président du Syndicat des Chirurgiens-dentistes de France; Martin (le Dr.), Président de l'Association des Dentistes du Rhône et de la région; Schwartz père, Président de l'Association Générale des Dentistes du Sud-Est.

Treasurer: M. Viau (G.), Professeur à l'Ecole Dentaire de Paris.

Secretary General: M. Sauvez (le Dr.), Professeur à l'Ecole Dentaire de Paris.

Secretaries: MM. Burt, Professeur à l'Ecole Odontotechnique; d'Argent, Président de l'Association Générale des Dentistes de France; Hivert, Professeur à l'Ecole Odontotechnique; Maire (le Dr.), Chef de Clinique à l'Ecole Dentaire de Paris; Martinier, Directeur Adjoint de l'Ecole Dentaire de Paris; Siffre, Professeur Suppléant à l'Ecole Odontotechnique.

Assistant Treasurer: M. Radolphe, Chef de Clinique à l'Ecole Odontotechnique.

Liste des Sociétés Françaises Adhérentes.

Société de l'Ecole et du Dispensaire dentaires de Paris.

Société d'odontologie de Paris.

Association générale des dentistes de France.

Syndicat des chirurgiens-dentistes de France.

American Dental Club of Paris.

Association des dentistes du Nord-Ouest de la France.

Association générale des dentistes du Rhône et de la région.

Société de l'Ecole odontotechnique de France.

Société odontologique de France.

Association odontotechnique de France.

Syndicat des chirurgiens dentistes patentés avant 1892 ou diplômés depuis.

Association générale des dentistes du Sud-Est de la France.

Société des dentistes du Sud-Ouest.

Syndicat des dentistes du Nord et du Pas-de-Calais.

Rules and Regulations.

Rules adopted by the Committee of Organization at the General Assembly of April 12, 1899.

Article 1. An International Dental Congress, under the patronage of the French government, will be held in Paris in 1900, from the 8th to 14th of August inclusive.

Article 2. Right of admission to the congress is fixed at f. 25. Members of the congress will have right to all advantages of official members.

Article 3. Applications for admission must be addressed to the general secretary, the cost of membership to the treasurer. (The committee asks those who desire to take part in the congress to send their subscriptions as soon as possible.)

Article 4. The reunions will be held: (a) For opening and closing, in one of the halls of the Palace of Congresses of the exposition. (b) For ordinary meetings, in the halls of the dental societies, 45 Rue de la Tour d'Auvergne and 3 Rue de l'Abbaye. (c) For demonstrations, in the operating rooms of the Dental School of Paris and the Odontotechnic School.

Article 5. Members wishing to read papers are asked to advise the general secretary three months before the opening of the congress, joining to this notice text of their paper, containing results of their work. These results the committee will translate into French.

To aid in discussing, each paper will be printed in the volume to be distributed to the members one month before the opening, providing the paper reaches the society three months ahead and was reported by the commission.

Article 6. The congress will be divided into several sections; 1. Anatomy, physiology, histology. 2. Special pathology and bacteriology. 3. Operative dentistry and special therapy. 4. Anesthesia, general and local. 5. Prosthetics, dental orthopedics and facial restitutions. 6. Instruction and dental history. 7. Legislation, jurisprudence and odontology. 8. Hygiene, public dental service.

Article 7. Work of the congress will comprise: 1. Communications, of two kinds. (a) Subjects proposed in advance by the committee and to be the objects of reports. (b) Those chosen at liberty. Communications (papers) will be in French, English, German, Russian, Spanish and Italian. Results must be in French. 2. Practical demonstrations (operative and prosthetic dentistry and presentation of new instruments).

Article 8. Work will be divided as follows: 1. From 9 to 12, practical demonstrations. 2. From 1:30 to 3, general assemblies. Program to be fixed by commission.

In the general assemblies will be read and discussed the subjects chosen by the commission as well as all things of general interest. 3. From 3 to 6, work of sections.

Article 9. The reviewing of papers shall take fifteen minutes for each. The president has a right to grant five minutes prolongation without consulting the meeting. Over this time the assembly must be consulted.

Article 10. Each speaker shall have five minutes for discussion and ten minutes with the president's consent. The same speaker shall not talk more than ten minutes during a discussion and at the same sitting, without consent of the assembly. Those wishing to discuss papers can have their names listed in advance by writing to the secretary.

Article 11. All papers that are published otherwise than through the congress, with the author's consent, in less than three months after closing of the congress, will figure only by name in the reports.

Article 12. All correspondence relating to the congress, requests for admission, names of subjects, manuscripts, printed forms, etc., must be addressed to the secretary.

Article 13. To be a member it is necessary: 1. To have legal right to practice in country of residence. 2. Honorably follow the profession, that is, without advertising, or other act contrary to professional dignity. 3. To be accepted by the National Committee of his own country, if one exists, or by the Committee of Organization.

Article 14. Persons not practicing dentistry can be admitted by special request to Committee of Organization.

NOTE.—Members wishing to make communications or demonstrations needing an installation of material are asked to give in advance all particulars (room, electricity, gas, etc., etc.).

Committee of the National Dental Association.

A. W. Harlan, chairman, 1000 Masonic Temple, Chicago, Ill.; W. E. Griswold, secretary, 401 Mack Blk., Denver, Colo.; Truman W. Brophy, 126 State St., Chicago, Ill.; Thos. E. Weeks, 608½ Nicollet Ave., Minneapolis, Minn.; L. L. Dunbar, 606 Sutter St., San Francisco, Cal.; C. L. Goddard, 406 Sutter St., San Francisco, Cal.; W. C. Barrett, 208 Franklin St., Buffalo, N. Y.; W. W. Walker, 58 W. Fiftieth St., N. Y.; Thos. Fillebrown, 157 Newbery St., Boston, Mass.; James McManus, 32 Pratt St., Hartford, Conn.; E. C. Kirk, University of Pennsylvania, Philadelphia, Pa.; Frank Holland, 24½ Whitehall St., Atlanta, Ga.; J. D. Patterson, Keith & Perry Bldg., Kansas City, Mo.; A. H. Fuller, S. E. cor. Eighth and Locust Sts., St. Louis, Mo.; H. J. McKellops, 3548 Lindell

Ave., St. Louis, Mo.; B. Holly Smith, 1007 Madison Ave., Baltimore, Md.; H. A. Smith, 116 Garfield Place, Cincinnati, Ohio; J. Taft, Elm and Shillito Sts., Cincinnati, Ohio; H. S. Sutphen, 24 E. Kinney St., Newark, N. J.; Geo. H. Chance, 809 Dekum Bldg., Portland, Ore.; Wm. Jarvie, 105 Clinton St., Brooklyn, N. Y.; H. W. Morgan, 211 N. High St., Nashville, Tenn.

The Paris Congress.

Blank forms of application for membership in the congress may be had from any member of the committee whose names we publish for the benefit of our readers. It is the intention of the committee to make liberal arrangements for transportation, hotels and boarding houses, and also to have two or three of the American residents in Paris to act as information dispensers or bureaux. A knowledge of French would be desirable to those who are going to Paris, but it is not indispensable. From time to time the journals in this country will give all needed information.

The Pennsylvania Board of Dental Examiners.

The Pennsylvania Board of Dental Examiners will conduct examinations simultaneously in Philadelphia and Pittsburg, Dec. 18, 19 and 20.

Application for examination must be made to Hon. James W. Latta, secretary of the Dental Council, Harrisburg, Pa.

G. W. KLUMP, Secretary,
Williamsport, Pa.

Ohio State Dental Society.

The thirty-fourth annual meeting of the Ohio State Dental Society will be held at the Grand Southern Hotel, Columbus, Ohio, Dec. 5, 6 and 7, 1899. A good programme consisting of essays and clinics has been prepared. A cordial invitation is extended to the profession at large.

HENRY BARNES, Chairman Executive Committee.